Microsoft TEAMS Virtual Meeting
JBCCCT Meeting 03 August 2022
6:00-7:30

Meeting Minutes

Member:	**Organization:**	**Telephone:**	**E-mail:**
Rose Forbes	AFCEC/JBCC	508-968-4670 x5613	rose.forbes@us.af.mil
Phil Goddard	JBCCCT/Bourne	508-759-3043	Pag456@comcast.net
Steve Hurley	Mass Wildlife		Steve.hurley@state.ma.us
Bob Lim	USEPA	617-918-1210	Lim.robert@epa.gov
Douglas Karson	AFCEC/JBCC	508-968-4678	douglas.karson@us.af.mil
Len Pinaud	MassDEP	508-946-2871	leonard.pinaud@state.ma.us
Tom Cambareri	JBCCCT	508-364-2644	tomcambareri@gmail.com
Shawn Cody	IAGWSP		shawn.c.cody.mil@mail.mil
Michael Cusack	JBCCCT		
Attendees:	**Organization:**	**Telephone:**	**E-mail:**
Pamela Richardson	IAGWSP	508-566-6390	Pamela.j.richardson.nfg@mail.mil
Lori Boghdan	IAGWSP	508-509-2869	lori.p.boghdan2.nfg@mail.mil
Jennifer DeAngelis	BB&E	508-968-4670	jennifer.deangelis.ctr@us.af.mil
Nikki Wagner	EA	508-968-4754	nwagner@eaest.com
Elliott Jacobs	MassDEP	508-946-2786	elliot.jacobs@state.ma.us
Kendall Walker	MassDEP	508-946-2846	kendall.walker@state.ma.us
David Dow	Sierra Club		ddow420@comcast.net
Elizabeth Kirkpatrick	USCG		Elizabeth.L.Kirkpatrick@uscg.mil
Mark Forest	Barnstable County		mark.forest@barnstablecounty.org
Ray Jack	UCWSC		
Nigel Tindall	Jacobs		Nigel.Tindall@jacobs.com
Denis R. LeBlanc	USGS		dleblanc@usgs.gov
Bill Winters	JBCCCT		
Anni Loughlin	EPA		loughlin.anni@epa.gov
Jessica Lockwood	EA		jlockwood@eaest.com
Mary O'Reilly	Jacobs		Mary.OReilly@jacobs.com
Angela McGinty	EA		Amcginty@eaest.com
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Meeting Presentations:

Available online at the AFCEC webpage and IAGWSP website or by email upon request.

Agenda Item #1. Introductions, Late-Breaking News, Approval of 13 April 2022 JBCCCT Cleanup Team Meeting Minutes – *Mr. Douglas Karson – AFCEC/IRP*

Mr. Karson reviewed the agenda for the night's meeting.

Mr. Karson asked for comments on minutes from the 13 April 2022 JBCCCT meeting. No comments were presented. Minutes can be finalized as written.

Mr. Karson asked for follow-up discussion on three action items from 13 April 2022 meeting which were addressed with notification to team members. The second action item is being addressed at this meeting in Agenda Item #2. There was no follow-up discussion.

Mr. Winters notified Mr. Karson that he is resigning from the team. Mr. Karson read his email in which he emphasized still wanting to be included in meetings and receive information. Mr. DiNardo also notified Mr. Karson that he is resigning from the team. Mr. Karson read his email. Mr. Karson expressed gratitude for their contributions as assets to the Team over many years.

Mr. Pasakarnis notified Mr. Karson he would be unable to attend this meeting only.

Agenda Item #2. EPA Update on Regional Screening Levels for Per- and Polyfluoroalkyl Substances (PFAS) – *Mr. Robert Lim, USEPA*

Mr. Lim introduced himself as the EPA RPM working with the Air Force on Joint Base Cape Cod for the cleanup. Mr. Lim stated that since the last JBCCCT meeting in April 2022, EPA has updated its Regional Screening Levels (RSLs) in May and in June published Interim Health Advisories. His presentation is focusing primarily on the regional screening levels but will also discuss the health advisories.

Mr. Lim summarized his presentation which will include the purpose of screening levels, EPA's 18 May 2022 Regional Screening Levels (RSLs) Update, Impacts at Joint Base Cape Cod, and the EPA Lifetime Drinking Water Health Advisories (HAs).

The purpose of Screening Levels within the context of the presentation is that at Joint Base Cape Cod the Air Force is investigating the impacts of PFAS at various sites and operable units. When the investigation is being done, the data are being compared against screening levels. There are other media that are evaluated in the investigation, but this presentation primarily focuses on groundwater.

Screening levels are not cleanup standards. They are risk-based values that help EPA determine if further investigation or actions are needed. Example of screening levels for groundwater are Maximum Contaminant Levels (MCLs), RSLs, and Massachusetts Maximum Contaminant Levels (MMCLs). Cleanup standards are chosen at the Feasibility Study stage and are documented in the Record of Decision. Mr. Lim said that there are a number of potential values that EPA looks at against looking specifically at groundwater. Mr. Lim will discuss RSLs. There are MCLs for other chemicals, but as of now there is no MCL for any of the PFAS chemicals. The state has issued a Massachusetts Maximum Contaminant Levels (MMCLs) for 6 PFAS chemicals.

In May, EPA issued an update to its RSLs. RSLs in general are regularly updated twice a year. The significant result from the RSL update is that EPA added PFOS, PFOA, PFNA, PFHxS, and HFPO-DA (GenX). PFBS, which was added in 2014, did not change. More information can be found at: www.epa.gov/risk/regional-screening-levels-rsls

Mr. Lim presented the table below that compares updates in drinking water screening vales for PFOS, PFOA, PFNA, PFHxS, HFPO-DA (GenX), and PFBS. Included in the table is a column titled Limit of Quantitation which is in response to an action item at a previous JBCCCT meeting.

Comparison of Drinking Water Screening Values (Nanogram per Liter)

Chemical	Old EPA RSL (ng/L) HQ=0.1	New EPA RSL Tap Water (ng/L) HQ=0.1	MMCL (ng/L)	Limit of Quantitation* (ng/L)
PFOA	40	6	Sum = 20	5
PFOS	40	4		5
PFNA	-	5.89		5
PFHxS	-	39.4		5
PFHpA	-	na		5
PFDA	-	na		5
HFPO-DA (GenX)	-	6	Na	na
PFBS*	600	No change	Na	5

*Method LCP-PFC from Flight Line Operable Unit RI Work Plan. Limit of Detection (LOD) values are Lower than Limit of Quantitation (LOQ) but results are considered an estimated (J) value if below the LOQ.

The Limit of Quantitation (LOQ) numbers are from a recent AF Remedial Investigation (RI) Work Plan from Flight Line Areas Operable Unit that is being implemented. The AF wanted Mr. Lim to point out that the LOQ is different from the limit of detection (LOD). The LOD is a little lower than the table values in the investigation. When sample results are below 5 (the LOQ), they are given a qualifier like a "J" value to say that it is estimated. The LOQis close to the EPA RSL for PFOA and PFOS but are low at 5 ng/L across the board.

Mr. Lim listed the JBCC sites that are impacted by EPAs RSLs. They include the Landfill-1 Groundwater Plume Feasibility Study, FTA-1/AV Supplemental RI for PFAS and 1,4-Dioxane, Tanker Truck Rollover Sites RI, and Flight Line Area Operable Unit RI. The AF is currently reviewing the new RSLs to determine the impacts on sites. Those impacts are yet to be determined but will be presented at a future JBCCCT meeting once determined.

Ms. Forbes clarified that AF contracts need to be modified first before any work regarding new RSLs is done. The AF is planning on modifying those contracts as long as funds are available.

Mr. Lim presented EPA's issuance in June 2022 of the Lifetime Drinking Water Health Advisories (HAs). Mr. Lim stated that the key point is that the drinking water health advisories take into account other sources of exposure to PFAS beyond drinking water such as food, air, and consumer products. These are more protective than the RSLs. EPA's lifetime HAs identify levels to protect all people, including sensitive populations and life stages, from adverse health effects resulting from a lifetime of exposure to these PFAS in drinking water. Although they are non-regulatory and non-enforceable, health advisories provide technical information for Superfund investigations and federal, state, and local agencies can use them to inform actions to address PFAS in drinking water.

Mr. Lim summarized the June publication for drinking water Health Advisories. EPA announced two final HAs – one for GenX chemicals (10 parts per trillion [ppt]) and PFBS (2000 ppt). In comparison from the RSL for GenX is 6 ng/L. The RSL for PFBS is 600 ng/L.

Two drinking water HAs are Interim updated HAs are for PFOS and PFOA and are based on draft toxicity information. The Superfund is not considering these Interim Updated HAs until such time that they are finalized. The Interim Updated HA for PFOA is 0.004 ppt and the Interim Updated HA for PFOS is 0.02 ppt. Because these values are Interim, EPA is not making the AF at JBCC look for these chemicals at such a low level.

Mr. Goddard stated he requested this presentation be on the agenda. He noted that 0.004 ppt is 4 picograms. Mr. Goddard thanked Mr. Lim for clarifying that the Superfund program is not using these values right now and he asked if that has been made clear to the broader public and environmental organizations. Mr. Goddard said EPA is siting this as the new standard and mentioning contamination at tens of thousands of times above the HA siting picograms per liter and obviously that is much more alarming if you are reading that as a lay person then ten times the HA. Mr. Goddard commented to EPA that it may be helpful to people to know that this is not yet finalized and begin and for EPA to get the messaging out so people understand that. Mr. Goddard directed his next question to Mr. Pinaud of MassDEP and asked while the Superfund is not going to consider this, is MassDEP looking at this and what impacts on decision making for NCP or state laws do you see this having right now given that 20 ng/L is the concern but now we are down to picograms. Mr. Goddard stated he didn't know any lab methodology that is going to be able to manage that on a regular basis.

Ms. Loughlin, EPA Region 1 Section Chief, responded to Mr. Goddard and said his point is correct that this is part per quadrillion. She said they are Interim, and they are based on draft toxicity information and the expectation is that after that toxicity information has been researched further that there will be some final Health Advisory that comes out for both of these at some future date. Ms. Loughlin agreed that the messaging has not been entirely clear on this, but these are Interim Updated Health Advisories and again the Superfund program is holding off on considering these until they are finalized.

Mr. Goddard asked if the Safe Drinking Water Act or authorization is the same. Ms. Loughlin asked if he was referring to the EPA Safe Water Drinking Act. Mr. Goddard responded asking what law are the ordnances being cleaned up under. Ms. Loughlin replied that they are the Safe Drinking Water Act. She stated that all Health Advisories are non-enforceable numbers. They are meant to be educational. Generally speaking, when EPA comes out with final Health Advisories, the EPA's water program rolls out periodically requests to municipal water treatment suppliers to test for contaminants at the Health Advisory levels.

Mr. Goddard stated that messaging is a huge issue, and he imagines every water supplier or anybody with any kind of bottled water or liquids for sale are scrambling right now to figure out how to address people who have concerns on this and that can be a conversation for a later time. Ms. Loughlin replied that Mr. Goddard is correct and that there are no analytical methods that can get down to these levels. Mr. Goddard said he is still absorbing parts per trillion so using metric versus English units it just adds to that.

Mr. Goddard addressed Mr. Pinaud, MassDEP, and asked if the state is in a similar wait and see position. Mr. Pinaud responded that the MMCL and the soil and groundwater standards are still in effect. There is no updated information regarding whether those will change. Mr. Pinaud said he will take that as an action item and make sure at the next meeting or between meetings, if that information is available, MassDEP will provide it.

Mr. Goddard thanked both agencies and said obviously the science and the Health Advisories and impacts are evolving very rapidly and we are all scrambling as this is a major issue we are all concerned about for obvious reasons. But, also by the same token, when you go change an entire order of magnitude it raises the messaging to a different level of urgency and may confuse people or put them in a state of concern that may not have a couple of months earlier.

Mr. Goddard asked Mr. Pinaud if he could make it an action item to see what the state and federal response is to messaging in particular for water supply – if DEP has any messages they are sending to the districts to tell their customers and how they might be required to report findings in their annual report to their water users so that when residents get that email have context.

Agenda Item #3. AFCEC Emerging Contaminants Update – *Ms. Rose Forbes, AFCEC and Ms. Mary O'Reilly, Jacobs*

Ms. O'Reilly began with an overview of her presentation. The presentation will include discussion of per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane standards, response actions, Fire Training Area-1 (FTA-1) Supplemental Remedial Investigation/Supplemental Feasibility Study (RI/FS) for 1,4-Dioxane and PFAS, Tanker Truck Rollover Sites (TTRS) – RI/FS for PFAS, Landfill-1 (LF-1) – Supplemental FS for 1,4-Dioxane and PFAS, and the Flight Line Area Operable Unit – RI for PFAS. The groundwater plume map at JBCC was presented.

A summary was given on the PFAS and 1,4-Dioxane Criteria for Drinking Water. In May 2016, EPA issued final Lifetime Drinking Water Health Advisory (HA) values for Perfluorooctane Sulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA) of 70 nanograms per liter (ng/L) (0.07 micrograms per liter [µg/L]) for each and combined. In October 2020, MassDEP issued a Massachusetts Maximum Contaminant Level (MMCL) drinking water standard of 20 ng/L (0.02 µg/L) for the sum of six PFAS (PFAS6) compounds: PFOS, PFOA, Perfluorononanoic Acid (PFNA), Perfluorohexane Sulfonic Acid (PFHxS), Perfluoroheptanoic Acid (PFHpA), and Perfluorodecanoic Acid (PFDA). In May 2022, EPA published updates to its Regional Screening Levels (RSLs) which include five PFAS; impacts to the JBCC program are being assessed and will be discussed at a future meeting. In June 2022, EPA issued Interim Updated Drinking Water HAs for PFOS and PFOA and Final HAs for Perfluorobutane Sulfonic Acid (PFBS) and GenX; EPA noted that Superfund sites should use updated RSLs since Interim HAs are still undergoing EPA Science Advisory Board review. The EPA RSL of 460 ng/L (0.46 µg/L) is for 1,4-dioxane. This presentation will use both µg/L and ng/L. To convert values 1 µg = 1000 ng; multiply the µg/L concentrations by 1,000 to convert the concentrations to ng/L.

Comments from agencies on the ongoing RI/FSs have been received and noted that updated RSLs should be used and not the Interim Advisory values for those sites.

Ms. O'Reilly presented and reviewed the table below of EPA RSLs.

EPA RSLs for PFAS - HQ = 0.1

		New PFOS	Old PFOS	New PFOA	Old PFOA	New PFNA	New PFHxS	New GenX	PFBS (no change)
Resident (ingestion + dermal)	Groundwater (µg/L)	0.00602	0.04	0.00401	0.04	0.00589	0.0394	0.00602	0.601
	Groundwater (ng/L)	6.02	40	4.01	40	5.89	39.4	6.02	601
Resident (ingestion + dermal)	Soil (µg/kg)	19	126	12.6	126	19	126	23.5	1,900
	Soil (ng/kg)	19000	126000	12600	126000	19000	126,000	23500	1900000
Recreator (Swimmer) (ingestion + dermal)	Surface Water (µg/L)	0.304	0.38	0.203	0.38	0.256	1.75	0.304	30.2
	Surface Water (ng/L)	304	380	203	380	256	1750	304	30200
Recreator (Swimmer) (ingestion + dermal)	Sediment (µg/kg)	88.5	737	59	737	88.5	590	110	8.85
	Sediment (ng/kg)	88500	737000	59000	737000	88500	590000	110000	8850

Notes:
Screening Values for resident potable use of groundwater, resident contact with soil, and recreator contact with sediment and surface water are based on an HQ of 0.1 and CR of 1E-06 and were obtained from EPA's RSL table or generated using the EPA RSL calculator (https://epaprgs.ornl.gov/cgi-bin/chemicals/csl_search).

Shaded values are the updated May 2022 RSL values.

Key:
CR = Cancer Risk
EPA = U.S. Environmental Protection Agency
GenX = HFPO-DA
HQ = Hazard Quotient
JBCC = Joint Base Cape Cod
ng/kg = nanogram per kilogram
ng/L = nanogram per liter
PFAS = Per- and Polyfluoroalkyl Substances
PFBS = Perfluorobutane Sulfonic Acid
PFHxS = Perfluorohexane Sulfonic Acid
PFNA = Perfluorononanoic Acid
PFOA = Perfluorooctanoic Acid
PFOS = Perfluorooctane Sulfonic Acid
RSL = EPA Regional Screening Level
µg/kg = microgram per kilogram
µg/L = microgram per liter

Ms. O'Reilly pointed out the significant difference in soil, groundwater, and sediment, but that surface water is not as big of a change in values.

An update was given on the response actions related to public/community water supply wells. These include eight public/community water supply wells sampled by AFCEC; two wells had PFOS+PFOAconcentrations greater than the HA. The Mashpee Village Public Water Supply Well (PWSW) was shut down in Feb 2017. AFCEC/USACE installed a wellhead treatment system to remove PFOS/PFOA whichbegan operation on 14 Feb 2020 and is still operating. The Community Water Supply Well for a neighborhood in Mashpee was disconnected and 93 trailers that utilized that well were connected to municipal water supply in 2018.

Two Mashpee PWSWs, Turner Road #2 and #5 PWSWs, have PFAS6 concentrations greater than the MMCL but below the HA; both wells have been taken offline (Feb 2019 and Jul 2020). AFCEC is installing wellhead treatment on the two Mashpee PWSWs and is scheduled for completion in Feb 2023. The Falmouth Fresh Pond PWSW had PFAS6 concentrations greater than the MMCL but below the HA in May 2019; the well was taken offline in Apr 2017 for perchlorate. AFCEC completed installation of wellhead treatment on the Falmouth PWSW and it was restarted on 16 Jun 2022. An Engineering Evaluation/Cost Analysis (EE/CA) and Action Memo (AM) for wellhead treatment on the two Mashpee and the Falmouth PWSWs were finalized in Feb 2022.

Ms. O'Reilly gave an update on the response actions related to private wells. 119 private wells were sampled in Mashpee, Falmouth, and Bourne, and there are currently no private wells with PFOS+PFOA concentrations greater than the HA. Ten private wells in Mashpee and Falmouth, with PFAS6 concentrations greater than the MMCL but below the HA, were receiving bottled water from AFCEC. AFCEC connected eight of these locations to municipal water supply in May 2022. Concentrations at the remaining two locations are expected to decrease below the MMCL and sampling will continue until concentrations are consistently below the MMCL for at least one year.

AFCEC completed installation of a water main and completed seven residential connections in Bourne in Jan 2022. 13 residential point-of-entry filtration systems were installed by AFCEC and seven were removed when connections to municipal water were completed. Six are no longer maintained by AFCEC since concentrations decreased below the HA and MMCL, and these systems have been turned over to the property owners. A total of 123 connections were made to municipal water supply which included 93 trailers where water was supplied by a private community water supply well and 30 residential properties.

The FTA-1 Supplemental RI field program was completed between 2015 and 2021 and included groundwater, soil, surface water, sediment, private well, public water supply well, and treatment system sampling. Previously referred to as Ashumet Valley, the source areas include the former FTA-1 and former base Sewage Treatment Plant (STP). The application of aqueous film-forming foam (AFFF) during fire training activities at FTA-1 is the primary source for the PFAS Contamination and is a different plume than the Ashumet Valley chlorinated solvent plume. The Draft Supplemental Remedial Investigation Report for 1,4-Dioxane and Per- and Polyfluoroalkyl Substances at Fire Training Area-1 was submitted to the agencies for review on 29 Apr 2022. EPA comments were received on 28 Jun 2022 requesting the Supplemental RI data be reassessed against the new RSLs and groundwater be sampled for GenX. MassDEP comments were received on 29 Jul 2022. AFCEC will be responding to comments once the contract is modified. Ms. O'Reilly presented the FTA-1 PFAS6 plume figure.

The Tanker Truck Rollover Sites (TTRS) RI field program was completed between 2018 and 2021 and included groundwater, soil, surface water, sediment, and private well sampling. The source of the PFAS contamination was the application of AFFF as part of an emergency response to two tanker truck rollovers at or near the Route 28 traffic rotary in 1997 and 2000. The Draft Remedial Investigation Report for Per- and Polyfluoroalkyl Substances at TTRS was submitted to the agencies on 07 Mar 2022. Comments were received and the response to comment letter was submitted on 23 May 2022. Additional EPA comments were received on 14 Jun 2022 requesting the RI data be reassessed against the new RSLs and groundwater be sampled for GenX. Additional comments were also received from MassDEP on 22 Jun 2022. The Draft Feasibility Study Report for Per- and Polyfluoroalkyl Substances at TTRS was submitted to the agencies on 29 Jul 2022. The FS will need to be updated for the new RSLs, but alternatives were presented to agencies for review and evaluation. Soil/Source Area Alternatives include: no action, capping, removal with off-site disposal, and an insitu barrier (i.e., colloidal carbon) which would be installed near the source area at the water table to prevent PFAS migration in groundwater. Groundwater alternatives include: no action, monitored natural attenuation (MNA) and land use controls (LUCs), pump and treat with MNA and LUCs. Ms. O'Reilly presented a TTRS PFAS6 plume figure.

Since the PFAS groundwater contamination extends from the TTRS source areas and discharges into surface water at Hen Cove and Red Brook Harbor, EPA requested AFCEC sample shellfish at Hen Cove to determine if PFAS are present in shellfish tissue at concentrations that present a potential health risk to consumers of shellfish from Hen Cove and Red Brook Harbor. Sampling was completed between 12 and 20 Apr 2022. Quahogs and oysters, the most prevalent shellfish in these areas, were collected for PFAS analysis from three locations at Hen Cove, one location at Red Brook Harbor, and from two reference locations not impacted by TTRS (Barlows Landing and Megansett Harbor). PFAS were not detected in any of the quahog samples collected. PFOS was detected in two composite oyster samples collected in Hen Cove; concentrations were 676J ng/kilogram (kg) (0.676J µg/kg) and 703J ng/kg (0.703J µg/kg). These data will be assessed using shellfish consumption screening values updated with EPAs RSLs for an adult consumer. MassDEP also completed shellfish sampling at Hen Cove. MassDEP also collected shellfish samples in Wellfleet Harbor for background and Hen Cove. Ms. O'Reilly presented a figure of the Hen Cove and Red Brook Harbor Study Areas and Barlows Landing and Megansett Harbor Areas which depicts where shellfish samples were taken.

The Supplemental FS was prepared at LF-1 to evaluate remedial alternatives for groundwater for 1,4-dioxane and PFAS. Three alternatives were evaluated for PFAS and 1,4-dioxane: no additional action,

existing remedial system, and existing system supplemented by two additional extraction wells in the main body of the plume. The Draft Supplemental FS report was submitted to the agencies on 12 Jan 2022, comments were received, and the response to comment letter was submitted on 11 May 2022. Additional EPA comments were received on 14 Jun 2022 requesting LF-1 data be reassessed against the new RSLs and groundwater be sampled for GenX. Additional comments were also received from MassDEP on 08 Jul 2022. Ms. O'Reilly presented the LF-1 1,4-dioxane detections in groundwater figure followed by a figure depicting the LF-1 PFAS6 detections in groundwater.

Ms. O'Reilly proceeded with the Flight Line Area Operable Unit (OU). There are six sites associated with the Flight Line Area OU: Air National Guard Motor Pool, Former Building 118 - Runway 32, Former Fire Department Building 122, Coast Guard Hangars 3170 and 3172, Lower 40 Ramp Area which includes the new Fire Department Building, and Army Helicopter Hangar 2816. Each of these sites had stored AFFF, had a spill, or were used for training. The source of contamination for the Air National Guard Motor Pool was AFFF used to suppress vapors and prevent a fire following a collision between a fuel truck and a snowplow.

An RI is in process at the six Flight Line Area sites as a Flight Line Area Operable Unit. The Draft RI Work Plan for PFAS at the Flight Line Area Operable Unit was submitted to the agencies on 12 Jan 2022; comments were received, and the response to comment letter was submitted on 28 Apr 2022. Additional EPA comments were received on 20 Jul 2022 requesting the Work Plan be updated to reflect the new EPA PFAS RSLs and to include limited groundwater sampling for GenX. Additional comments from MassDEP were also received on 25 May 2022.

The Expanded SI included the Wastewater Treatment Plant (WWTP) infiltration bed site. A No Further Remedial Action Planned (NFRAP) Decision Document (DD) for the WWTP site was submitted to the agencies on 04 Feb 2022; comments were received, and the response to comment letter was submitted on 09 Jun 2022. Additional EPA comments were received on 19 Jul 2022 and from MassDEP on 25 Jul 2022. AFCEC is currently working through these comments. Ms. O'Reilly presented a figure on particle tracks from the Flight Line Area OU Sites. Ms. O'Reilly pointed out that the Former Building 118 site includes area to the east. The source area is located downgradient to the detections which can be seen by the particle tracks that show the groundwater flow. This area has the same downgradient discharge locations of Moody Pond and the Quashnet Bog.

The Flight Line Area Operable Unit RI field program is ongoing, and groundwater vertical profile borings have been completed at several sites. At the Former Fire Department Building 122, AFCEC has completed five RI groundwater vertical profile borings to date (FLDP4206 to FLDP4210); highest PFAS6 groundwater concentration is 41,360 J ng/L (41.36 J µg/L) in a boring located in the source area. At the Lower 40 Ramp Area, AFCEC has completed six RI groundwater vertical profile borings to date (FLDP4115 to FLDP4120); highest PFAS6 groundwater concentration is 17,270 ng/L (17.27 µg/L) in a boring located to the east of the Fire Station.

PFAS samples were collected during completion of the two Fuel Spill-13 (FS-13) groundwater vertical profile borings (38DP0001 and 38DP0002) in relation to detections at Chemical Spill (CS-10) In-Plume PFAS extraction well data. The FS-13 release was an underground pipeline leak discovered in 1972 so it was not an incident where the fire department would have responded with an application of fire fighting foam. While monitoring for the legacy FS-13 contaminants, AFCEC took the opportunity to collect samples for PFAS analysis. PFAS6 concentrations exceeded the MMCL in one boring and highest concentration was 75 J ng/L (0.075 J µg/L). At the Former Building 118 - Runway 32, AFCEC has completed twelve RI groundwater vertical profile borings; some data are pending receipt.

At the Former Building 118 site, time and distance testing was conducted annually for 10 years. The area was historically used to flush out hoses containing residual AFFF after responding to emergencies, and the area has been expanded to include PFAS contamination to the east near Runway 32. AFCEC collected

groundwater samples from 25 monitoring wells and 29 borings to date, with the highest PFAS6 groundwater concentration of 24,230J ng/L (24.23J µg/L) at source area boring FLDP4000. Groundwater contamination extends past the base boundary. Surface water samples were collected from Moody Pond, a pond to the north and the Quashnet River and former bogs. The highest PFOS and PFOA concentrations were 170 and 40 ng/L (0.17 and 0.04 µg/L). Soil samples were collected from four borings and 20 grid cells across the source area resulting in the highest PFOS concentration of 37,000 J ng/kg (37 J µg/kg), and PFOA 1,000 J ng/kg (1 J µg/kg) concentrations were detected at FLSO4518 which is located along the western boundary of the source area.

AFCEC's path forward is to continue the FTA-1 area private well monitoring program and complete installation of wellhead treatment on the two Mashpee Turner Road PWSWs. AFCEC will also resolve agency comments then submit final reports for the Draft Supplemental RI Report for 1,4-Dioxane and PFAS at FTA-1, the Draft RI Report for PFAS at TTRS and submit final report, the Draft Supplemental FS Report for 1,4-Dioxane and PFAS at LF-1, and the Draft RI Work Plan for PFAS at the Flight Line Operable Unit. Agency comments on the Draft NFRAP DD for the WWTP infiltration bed site need to be resolved.

AFCEC will continue the Flight Line Area Operable Unit RI field program and present sample results and field program updates to the agencies at Technical Update Meetings and to the public at future JBCC Cleanup Team Meetings.

Mr. Goddard said that Ms. O'Reilly's presentation highlights the concerns he expressed earlier in the meeting. Connecting to Bourne Water District water is fantastic and Mr. Goddard is also connected to it and has high confidence in it. He said that using past practice as precedent, the state of Massachusetts took the HA of 70 ng/L and went to a more restrictive 20 ng/L for PFAS6, so is that going to follow the new HA once it is finalized? How will AFCEC provide closure if you provide Bourne Water District water, but you can't be sure it meets the new standards? Mr. Goddard continued that he is sure all of the regulators are struggling with this and points it out as an example because they may have to revisit that because the decision it was based on a different standard. Mr. Goddard asked that it be a future action item when they respond with the final numbers. Ms. Forbes responded that the residences were connected to municipal water so there is no further issue with what the HAs, RSLs or MCLs are.

Mr. Goddard responded that AFCEC used bottled water to reduce the exposure until a solution was provided to them and the solution was providing Bourne Water District water connection. If it is determined later that Bourne Water District water is above any state standard they got for PFAS6 based on a future HA, is AFCEC under any obligation to revisit and treat that water again. Ms. Forbes responded that it would depend on whether the PFAS contamination was coming from the base and noted there are no Bourne Water Supply wells in the Tanker Truck Rollover area. Mr. Goddard said the reason AFCEC is taking the action is because they are taking responsibility for the Tanker Truck Rollover Spill, so therefore had to supply alternate water supply, and if the water supply you are proposing currently meets the standards but in the future it is determined it does not meet the standards, would you have to revisit because the solution AFCEC provided does not satisfy the state guidelines. Ms. Forbes responded at that point, the responsibility is with the Bourne Water District to figure out where the PFAS is coming from. If we know it is not coming from the base, then it is coming from another source of which there are many for PFAS. That would not be the Air Force's responsibility. Mr. Goddard said that this is an important question because that is the solution AFCEC is offering because a resident could say they lost the use of their private well, and now the alternative doesn't work, so they would have to go to the Bourne Water District to supply them an alternate and not the Air Force.

Ms. O'Reilly said that if there was a problem with the Bourne Water District than it would impact more than the 7 residents that AFCEC connected, so they would have to take care of the water for all of the residents. Mr. Goddard said that this is the ripple effect of this HA - that the Air Force is doing the right thing to supply to a federally regulated water supplier that now may be subject to different standards that would affect all of the users whether they are affected by the Air Force replacement connection or not. That

is the potential ripple effect, and this could reopen decisions that we thought were done. Mr. Goddard said he is not a homeowner, but put yourself in the shoes of them.

Mr. Goddard continued with discussing treatment. He said that Granular Activated Carbon (GAC) was talked about for groundwater but how do we know that GAC can get down to picograms per liter? Testing will need to be done which was talked about earlier. Mr. Goddard referred to the soils and said that AFCEC mentioned leaving it in site, capping it in place, barriers, and off-site disposal. Mr. Goddard asked for a potential action item because the solid waste industry is being impacted by PFAS as everybody is. The wastewater treatment industry has been impacted – biosolids have PFAS, landfills are being targeted as potential sources – they are not generators but are receivers. And EPA is considering listing PFAS compounds as Superfund analytes that could potentially effect disposal sites. They may say "We don't want your soils" at a landfill from the fear of lawsuits and CERCLA actions from cleanups such as this. Mr. Goddard said so as an action item, are you considering Subtitle C Hazardous Waste Landfills? Soils are voluminous for cooking them and doing thermal sorbs and other things, maybe AFCEC could elaborate on that at a future meeting unless you want to do it now as it is a potential complication.

Ms. Forbes responded and said this is an alternative that is being evaluated in the feasibility study. In the feasibility study you have criteria that you assess those alternatives against. So, that would be part of the assessment. There is concern with shipping anything off site that has PFAS obviously. Ms. Forbes said it is not an action item yet because it is still being assessed in the feasibility study. Mr. Goddard asked that when the feasibility study comes out, that will be commented on. Ms. Forbes replied, yes. Ms. O'Reilly added that it is very costly to excavate and transport PFAS contaminated soil off site. Mr. Goddard added that traditional contaminated soils markets may refuse the material and create a whole other costly range of options.

Mr. Goddard said he has asked before that federal military specifications for fire-fighting response still required AFFF, is the Guard at JBCC using alternative foams or are they still using AFFF and contributing to continued exposure? Ms. Forbes responded that the fire department on base falls under the Commonwealth of Massachusetts, so it may be a question for MassDEP to respond to, but as a result of conversations from the action item from the last meeting is that the fire department still has the C8/AFFF foams and if there is an aircraft incident they will use it until there is an approved alternative. However, they will not be using it off base as a response item or on any kind of structure fire. It is only going to be used on aircraft specific to the mil specs. Mr. Goddard thanked Ms. Forbes for the information. He directed his next question to the MassDEP and said that he provided something that did have military specs and is MassDEP looking at this more because they had a whole program that captured this material from municipalities to destroy it and replace it. Mr. Pinaud said there was an action item on this and MassDEP responded but it was probably a while ago. Mr. Pinaud said that Ms. Forbes answered the question correctly and that his understanding is that there isn't an acceptable mil spec alternative for AFFF right now. For aviation accidents where they have to use AFFF or some kind of foam, they still have to use the AFFF that they have. Mr. Pinaud said that Ms. Forbes did elaborate that the fire chief is not going to AFFF off base and is just going to be used for aircraft incidents on base. Mr. Pinaud continued and said that until there is an acceptable alternative, the fire department will still need to use the AFFF for the job that they need to do. Mr. Goddard said he understands that safety is first and that it is good to know that the general use of it is being contained as much as possible. He asked if there anything they can do around the flight line or the catch basins that would run off and go through the storm water control systems to contain it a little better? Ms. Forbes said that in her discussions with the chief, he said it is his intention to clean up the foam if used as soon as possible. Mr. Goddard said he would send the information he had about mil spec substance to the team.

Agenda Item #4. Military Munitions Response Program Status Update – *Ms. Nikki Wagner, EA Engineering, Science, and Technology., PBC*

Ms. Wagner presented the background of MMRP at JBCC. The Air Force Civil Engineer Center (AFCEC) has been conducting investigation/remediation at 10 munitions response areas (MRAs) (two of which are closed) at JBCC under the Military Munitions Response Program (MMRP). As a result of previous military training, MMRP sites may contain munitions and explosives of concern (MEC), discarded military munitions (DMM), and/or munitions constituents (MC). The MMRP follows the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Contingency Plan. JBCC's Federal Facility Agreement applies to these MMRP sites but does not apply to operational ranges, operating storage/manufacturing facilities, or to permitted treatment and disposal facilities. Ms. Wagner showed a figure of the MMRP sites at JBCC.

The Skeet Range was historically used for small arms training and is currently in a Remedial Investigation (RI) and Feasibility Study (FS) for lead with the RI in regulatory comment resolution and the FS in regulatory review. The Otis Gun Club was historically used for small arms training and is currently in the RI/FS. AFCEC is conducting a Supplemental RI and the planning document is in regulatory comment resolution. The document details the means and methods of the supplemental RI including a wetland delineation; additional soil, sediment, and surface water sampling; a lead pellet study; and earthworm tissue sampling. The planning document also details how the data will be used in a baseline ecological risk assessment to evaluate effects of site-specific lead concentrations on ecological receptors.

The Mock Village was historically used as an urban training complex and mock German village. AFCEC is currently implementing Land Use Controls (LUCs). The Final Record of Decision was submitted on 06 Apr 2022 with EPA signature and MassDEP concurrence. AFCEC is updating the Land Use Control Implementation Plan. The Ordnance Area 1 was historically used for ordnance storage. AFCEC is finalizing the Supplemental CSE Phase II Report with EPA concurrence. AFCEC recommends no further action (NFA) and site closure based on investigation findings. For the next step AFCEC will prepare the NFRAP DD for regulatory review.

The Old Grenade Courts Training was historically used with dummy/practice grenades and live grenades. It is currently in the Expanded CSE Phase II Investigation. AFCEC is conducting an expanded MEC investigation including digital geophysical mapping and intrusive investigation of anomalies (ongoing). Field work was initiated on 28 Feb 2022 and is expected to conclude in Fall 2022. The expanded investigation goal is to achieve site closure. The Old K Range was historically used as a small arms and rocket range training. It is currently in the Proposed Plan phase. AFCEC is finalizing the FS with concurrence from EPA and MassDEP and drafting the Proposed Plan for regulatory review.

The Former Ammunition Supply Point (FASP)-East was historically used for ordnance storage. It is currently in Comprehensive Site Evaluation (CSE) Phase II. EPA rescinded the NFA and AFCEC is determining the path forward with regulators. The FASP-West was historically used for ordnance storage and is in CSE Phase II. EPA rescinded the NFA and AFCEC is determining path forward with regulators.

The Otis Target Butt site which was historically used for small arms training and the Former Otis Bomb Storage Magazines site, which was used for ordnance storage, have both been closed.

Agenda Item #4. Restoration Advisory Board (RAB) Guidelines and Community Involvement Plan (CIP) – *Mr. Douglas Karson, AFCEC*

Mr. Karson said that AFCEC has received comments from EPA and MassDEP on the Draft CIP. AFCEC responded to those comments and is awaiting further comments or concurrence from the agencies. Mr. Karson will revise the draft document with those comments and send to the team members for their review and input. The CIP will then go out for a 30-day public comment period likely before the next JBCCCT meeting. Mr. Karson is planning on giving an update at the next JBCCCT meeting.

Mr. Karson sent out the Draft RAB Guidelines to the team members. The guidelines were drafted by looking back at the history of the teams and using the Air Force guidelines. The Air Force uses the term RAB which is interchangeable with JBCCCT.

Mr. Goddard said he hadn't had a chance to look at the document yet, but it is important to have those down because meetings are quieter than they have been in the past and there needs to be rules written down.

Mr. Karson said the guidelines will be an attachment to the Draft CIP when it goes out for public comment.

Agenda Item #5. Final Discussion

Mr. Goddard commented that he neglected to acknowledge that AFCEC responded to his comments from the last meeting. He said he appreciates AFCEC discussing things in nanograms per liter. Obviously AFCEC has micrograms per liter as well, but everyone talking in nanograms per liter for PFAS6 really helps people understand the numbers in the same context without having to do conversions.

Mr. Goddard said there was discussion on the last item from the last JBCCCT meeting that Mr. Jack brought up and Mr. Goddard concurred about the Upper Cape Regional Water Supply Reserve, the J Well, and what sentinel wells receive, and what they are contemplating for wellhead treatment with granular activated carbon. Mr. Goddard said he supports that they need to look at that and urges that they have a discussion with the leaders of that supply reserve for capital and procurement discussions at least on a planning level at this point should sentinel wells have data that say there needs to be treatment. With the new Health Advisories and the indications that may have with the state levels, that they aren't waiting or delaying a year or two to get that system in place. Mr. Goddard said it was discussed last time and may have been an action item, but if not maybe it can be for next time. He asked if there were any comments. Col. Cody responded and said the IAGWSP is continuing to work with EPA and MassDEP on the nature and extent of PFAS on both the J2 and J3 Ranges. The Work Plan for both Ranges is currently being finalized which includes additional sampling and new monitoring wells upgradient from the sentry wells for Water Supply Well No. 2. Additional samples of groundwater for PFAS were taken and they are awaiting the results. IAGWSP plans to provide a comprehensive update at the next JBCCCT meeting, but if any notable results are received, they will be shared with the team. Mr. Goddard said he had more of a logistics question. Who is the authority that would say we need to spend capital on a wellhead treatment system and what is the process? Is a representative from each town on there? Col. Cody responded that IAGWSP would work with the Upper Cape Water Supply Well Commission to determine what kind of treatment is needed if it ever got to that point. Mr. Goddard asked who is that? Is the water districts the representatives on that? Col. Cody responded that each town has a representative on the Commission. Ray Jack is one of those representatives. IAGWSP updates them at their meetings and closely works with them. Mr. Jack was unable to unmute to participate in the conversation so Mr. Goddard said he would speak with Mr. Jack offline.

There were no more comments and the meeting adjourned.