

Community Questions regarding 30 April 2020 Restoration Advisory Committee (RAC) Meeting for Stewart Air National Guard Base

Submitted to Air National Guard (ANG) on 14 June 2020

A list of [acronyms and abbreviations](#) is provided at the end of the document.

Slide 13 - CERCLA Timeframes

- 1. ANG is still in a preliminary “site inspection” phase that is meant to determine IF there is a problem. The next phase - the Remedial Investigation/Feasibility Study - is meant to fully delineate the contamination and identify potential long-term remediation strategies. It has been four years since the contamination was discovered, and since initial NYS DEC testing identified that the base is a problem. This timeline shows that it could be 10 or more years before there is a remedy in place. How can the ANG justify such a slow timeframe?**

Response Provided By: National Guard Bureau (NGB)/A4VR (Environmental Restoration)

Response: The ANG is committed to following the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) at ANG release sites to evaluate unacceptable risk to human health and the environment with the understanding that individual release sites may result in a range of response and clean-up actions. The process from the initial assessment to the beginning of actual cleanup is a multi-year effort. The various investigation phases are time-consuming and must be completed before moving on to the next CERCLA phase. When we identify drinking water with Perfluorooctane Sulfonate (PFOS) and/or Perfluorooctanoic Acid (PFOA) above the Environmental Protection Agency (EPA) drinking water lifetime health advisory (LHA) as a result of our past mission activities, we will work with the community to determine appropriate short-term response actions such as providing an alternate drinking water source, filtration system, and/or providing bottled water, if needed. At Stewart Air National Guard Base (ANGB), the New York State Department of Environmental Conservation (NYSDEC) has already completed a response action for drinking water by installing a drinking water treatment system at Lake Washington to reduce PFOS/PFOA to below the EPA LHA. The ANG will continue to follow the CERCLA process to identify further response actions during this multi-year effort.

- 2. Interim Remedial Measures can and should be implemented to stop sources of pollution as soon as possible. Is ANG committed to implementing IRMs, in addition to the Rec Pond filter?**

Response Provided By: NGB/A4VR

Response: The ANG's investigation work and response actions are guided by CERCLA, applicable state laws, and the EPA's LHA for drinking water. The ANG is moving forward aggressively in accordance with the CERCLA process to fully investigate releases, prioritize responses, and determine appropriate cleanup actions based on risk. When we identify drinking water with PFOS/PFOA above the EPA drinking water LHA as a result of our past mission activities, we will work with the community to determine appropriate short-term response actions such as providing an alternate drinking water source, filtration system, and/or providing bottled water, if needed. At Stewart ANGB, NYSDEC has already completed a response action for drinking water by installing a drinking water treatment system at Lake Washington to reduce PFOS/PFOA to below the EPA LHA. Outside of CERCLA under the Clean Water Act, the ANG is testing the use of an Interim Storm Water Treatment System (ISWTS) at Rec Pond. Results from the ISWTS operation, Expanded Site Inspection (SI), and Remedial Investigation (RI) will all be evaluated during the Feasibility Study (FS) phase to determine future response actions under CERCLA.

In addition, with regard to stopping sources of pollution, the ANG has replaced legacy Aqueous Film Forming Foam (AFFF) in fire vehicles, stockpiles, and hangar systems with a more environmentally responsible formulation. The ANG also limits use of the new AFFF formula to emergency responses.

Slide 14 & 15 - Former Base Landfill (Site 3)

3. Text states landfill was active 1960-70s. Did it lay idle until covered in 1999?

Response Provided By: NGB/A4VR

Response: Per Administrative Record (AR) # 29757, the landfill was operated by the U.S. Air Force (USAF) from approximately 1963 to 1970. From 1970 to 1982, the landfill was operated by the New York Metropolitan Transit Authority and a contingent from the U.S. Military Academy. Disposal operations at the landfill were discontinued in 1982. Site 3 investigation studies began in 1983.

4. Text states long term monitoring began in 2007. Was there ever any monitoring before that time?

Response Provided By: NGB/A4VR

Response: Yes. Slide states *Annual* long term monitoring began in 2007. As stated during the meeting, previous sampling was more frequent (quarterly and semiannually) and transitioned to annual sampling in 2007. See AR # 595661 for details on monitoring events from 2000 to 2007. All sampling was performed in accordance with the Part 360 permit from the time the landfill was closed and capped.

5. Is this data in the public domain?

Response Provided By: NGB/A4VR

Response: Yes, as stated during the meeting, historical reports for Site 3 (and all other sites) can be found in the online AR (<https://ar.afcec-cloud.af.mil>). CERCLA documents are added to the AR when they are Final. Note that the former base landfill was formerly called Site 1, so some documents for this site have Site 1 in the title.

6. Was/Is the facility closed under NYS Landfill Regulations? If not, could you tell us what closure guidelines were employed?

Response Provided By: NGB/A4VR

Response: Site 3 was closed under New York State (NYS) Landfill Regulations, 6 New York Codes, Rules and Regulations (NYCRR) Part 360.

7. Were there no post-closure monitoring requirements for the landfill closure in 1999?

Response Provided By: NGB/A4VR

Response: There were post-closure monitoring requirements for the landfill closure in 1999. See Response to Question 4 and AR # 595661 for more details. First report for Q1 2000 is AR # 46679.

8. How is it that a final work plan for monitoring only came about in February of this year?

Response Provided By: NGB/A4VR

Response: As stated during the meeting, a new contract was awarded which prompted a new Work Plan. For previous Work Plans, see AR where multiple monitoring Work Plans dating back to 2000 are included for this landfill. Original Work Plan is AR # 46668 (February 2000).

9. Was this done under DEC Consent Order?

Response Provided By: NGB/A4VR

Response: No; original monitoring plan was developed in accordance with 6 NYCRR Part 360.

10. Was it the current PFAS crisis that brought the landfill to the DEC's attention?

Response Provided By: NGB/A4VR

Response: No, the ANG has been conducting Restoration activities at Site 3 since the 1980s (see AR # 29757).

11. **Will the sampling results from 2007 to date be included in the current analysis report?**

Response Provided By: NGB/A4VR

Response: Yes, data going back to the initial sampling will be included in an appendix.

Slide 19 - Stormwater Modeling

12. **The study appears to be considering sub-watershed contributions to determining flow of surface water around the entire facility whether on the ANG Base, Airport property as a whole or in the surrounding community.**

Response Provided By: NGB/A4VR

Response: Both groundwater and surface water have been assessed, primarily around the ANGB. Work that has produced evidence of the flow from the Stewart Airport has been a result of the Base study. If by "sub-watershed" the question is asking if groundwater is being used to determine the flow of surface water then the answer is no. These two dynamics are assessed separately. Although surface water may contribute to groundwater, where there is infiltration, and surface water may follow topography that is also an indicator of groundwater migrational patterns, these remain independent systems.

13. **The purpose of this study should be to determine how much capacity the Rec Pond treatment system needs to have. The current filtration system, even if it were working, is not designed to handle even very small rainstorms. Why is that purpose not stated?**

Response Provided By: NGB/A4VR

Response: The focus of this study is an Expanded SI under CERCLA. The ISWTS at Rec Pond is a separate study being conducted in accordance with the Clean Water Act, not CERCLA. The ISWTS at Rec Pond is an interim measure, and a permanent treatment system at Rec Pond may not be the final remedy for this site. Results from the ISWTS operation, Expanded SI, and RI will all be evaluated during the FS phase to determine future options for response actions under CERCLA.

14. **Relative to Outfall 17K / Northeast Business Center drainage, the NYS DEC and NYS DOT had identified ways to change drainage, to divert this runoff to Patton Brook, rather than have it pass under the ANG, where PFAS-polluted groundwater infiltrates the stormwater pipe. What is being done to study and implement alternatives such as this? ANG: They are considering this and have done some assessment of the pipe running under the base. The pipes are looking bad, but they have not made a decision yet. ANG is very interested in reducing flow and they think this proposal would be very helpful.**

Response Provided By: 105th Airlift Wing, Stewart Air National Guard Base

Response: The Department of Transportation (DOT) is currently in the process of performing a feasibility evaluation to divert the 17k pipe.

- 15. Why is the investigation not considering other paths of flow off the property other than Rec. Pond? Albeit the most impactful currently. Specifically, will there be any investigation of effluent into tributaries to the southwest of the airport including some of Beaver Dam Lake and Brown's Pond tributaries?**

Response Provided By: NGB/A4VR

Response: In addition to Rec Pond, the Expanded SI is looking at other paths of flow off the property in the Patton Brook area to the east of the base. Because groundwater and surface water flow to the south and southeast, the ANG will not be investigating effluent into tributaries to the southwest of the airport since that would be either upgradient or crossgradient of the base. Any contamination to the southwest of the airport would not be attributable to ANG activities.

- 16. Similarly, why is the investigation not considering flows that may affect Patton Brook watershed. Based on the ANG's SPDES permit, we believe that Outfalls 001, 01A, 004, 005, 006, 007, 008, 009 and 009a drain to the Patton Brook watershed, upstream of the diversion that can bring water from Patton Brook into Washington Lake. Some of these outfalls could be contributing to PFAS in surface water measured above the 70 ppt LHA, displayed on the "on-base sampling locations" map on slide 39, and could be relevant to two of the five "expanded SI sampling areas" identified on slide 43. [Note, however that past DEC sampling did not show that Patton Brook was highly contaminated. Silver Stream is the major problem.] ANG response: Rec Pond is the focus, since it is the most obvious.**

Response Provided By: NGB/A4VR

Response: The Expanded SI is considering flows that may affect the Patton Brook watershed. In the wetland area downgradient of the Site 3 Former Base Landfill and to the west of the New York Thruway, Expanded SI surface water results indicate detectable concentrations of PFOS and PFOA (PFOS + PFOA concentration = 116 ppt). However, in Patton Brook to the east of the Thruway, PFOS and PFOA concentrations are below screening level criteria, and similar to the background concentration observed in a northern tributary to Patton Brook (PFOS + PFOA = 12.1 ppt). Based on this data, this pathway would not have represented a significant source to Lake Washington. Therefore, flow from Rec Pond has been the primary focus.

- 17. Could we be provided a history of what entity is responsible for the lifetime development of the overall airfield? It is my limited understanding that much if not all the major land grading and infrastructure were installed to accommodate the growth of the military at the facility. Hence, an evaluation of all the effluent conduits from the property should be taken under study.**

Response Provided By: 105th Airlift Wing, Stewart Air National Guard Base

Response: DOT provided a link to a great article titled "Some key dates in the history of Stewart International Airport":
<https://www.recordonline.com/article/20071026/News/71026025>

- 18. For stormwater modeling, there are several outfalls in the Stewart ANG's SPDES permit that -- best I can tell -- discharge to Patton Brook watershed. These are not modeled as part of the study, but there are some results presented in the on-base site investigation slide suggesting that there were elevated PFAS concentrations detected in some areas that could be influenced by these outfalls.**

Response Provided By: NGB/A4VR

Response: See response to Question 16.

Slide 21 - Wet Weather Sampling

- 19. How are groundwater effects/interactions being measured here? Hard to get an accurate systems-read when that is not accounted for.**

Response Provided By: NGB/A4VR

Response: This slide represents outfall concentrations during high rainfall storm events. The data can be used to support hypothesis about groundwater impacts, but measurement of groundwater effects/interactions was not the purpose of this slide.

- 20. Other system factors: biological nutrients and sediment build-up. Can you measure those as well on all outfalls?**

Response Provided By: NGB/A4VN (Environmental Compliance) & U.S. Army Corps of Engineers (USACE)

Response: They can be measured on all outfalls, but have not been measured.

- 21. The PFAS chems could be leaching like a teabag into the ground; we understand you're in the discovery phase of CERCLA but doesn't lining offer some preventative measure? Are there localized gradient wells you can test to see about groundwater contamination?**

Response Provided By: NGB/A4VR

Response: The Expanded SI results indicate sediment in Recreation Pond likely contributes PFOS and PFOA to the surface water, however, the potential contribution from sediment is relatively low compared to contributions from stormwater. In addition, based on groundwater sampling in wells during the Expanded SI, a groundwater Per- and Poly-Fluoroalkyl Substances (PFAS) plume does not appear to have migrated to Lake Washington. The potential for the use of a liner would be considered during the RI/FS stage of the CERCLA process.

22. In PFAS testing are you using dry (bound) and wet (dissolved) samples (w/ sediments and w/out)?

Response Provided By: NGB/A4VR

Response: The laboratory uses the EPA approved methodology for sediment analyses that includes samples submitted to the lab wet, then the lab performs the analysis on wet material but the final result is reported as dry weight corrected, e.g. ug/kg.

23. What are all the PFAS chems being tested for/measured in the installation? Can you plot these chemicals as well, or point us to raw data?

Response Provided By: NGB/A4VR

Response: Samples were analyzed for the following six PFAS: PFOS, PFOA, Perfluorobutanesulfonic Acid (PFBS), Perfluorohexane Sulfonate (PFHxS), Perfluorononanoic acid (PFNA), and Perfluoroheptanoic acid (PFHpA). Raw data will be provided in the final Expanded SI Report.

24. If you're truly measuring loads (we realize this is calibration data)... concern about testing methods

What is the background sampling? The scale bar missing on graph. Describe method...Dry period between rain events; Groundwater dynamic may be throwing this off; Outfall 10 was only tested 2x whereas incoming sources tested 4x; hard to create a trend line with this limited data

Response Provided By: NGB/A4VR

Response: The scale bar will be included on this graph in the final Expanded SI Report. The method for automated surface water sampling was to collect samples in rain events greater than 0.5 inches. Outfall 10 was only tested 2x due to the unanticipated change in the design of the ISWTS at Recreation Pond after construction began in October 2019. Trend lines are better used when more data is available - e.g., four seasonal quarters of sampling data or more. Essentially trend lines are only as good as the number of data points that can be collected. The Expanded SI included a snap-shot in time for a storm event.

25. We foiled some documents from DEC that indicate PFAS was detected at Outfall 014. Is there a reason it's not included in study?

Response Provided By: NGB/A4VR

Response: As stated during the meeting, Outfall 14 = Outfall A, and Outfall A is included in the study. Outfall 14 is the name Stewart International Airport (SIA) uses for what ANG calls Outfall A.

26. What is the make-up of the sediment mucking up the filters; what are the problem constituents you are testing for? Ethylene and propylene glycol - de-icing chemicals have been known to clog up filters in the past. Are these being tested for?

Response Provided By: NGB/A4VN & USACE

Response: Question 1: In addition to PFAS, water quality samples have been collected and analyzed for: Glycol, Total Organic Carbon (TOC), Chemical Oxygen Demand (COD), Metals, Total Dissolved Solids (TDS), Total Suspended Solids (TSS), Turbidity, Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), Hardness, Chloride, Nitrate, Nitrite, Total Kjeldahl Nitrogen (TKN), Sulfate, Ortho Phosphate, and Alkalinity to better document water quality.

Question 2: Yes. See response to Question 62.

27. **If they are present - how are you mitigating them - coming from SANG, Airport, or both?**

Response Provided By: 105th Airlift Wing, Stewart Air National Guard Base

Response: See response to Question 63.

Slide 22 – Grab Samples

28. **The scales for Rainfall (in) and Flowrate (gpm) could be clearer. Only because the rainfall and peak outflow are stated in the preceding heading can one figure increments. It appears each vertical bar is one hour.**

Response Provided By: NGB/A4VR

Response: The purpose of the slide was to focus on overall trends for rainfall, flowrate, and PFOS/PFOA over time; details will be provided in the final Expanded SI Report. Each vertical bar is one hour.

29. **Given the increase in concentration of contaminants with diminished or no rainfall, it appears there is a continued fluid source supplying contaminants to even the minimum base flow.**

Response Provided By: NGB/A4VR

Response: Agree; as discussed during the meeting, groundwater infiltration into underground stormwater pipes is believed to be a source which is not dependent on rainfall.

Slide 26 – 17K Outflow

30. **There are a few large detention basins in the Northeast Business Park that may be cause for the time lag and loss of continuity at the end of the event.**

Response Provided By: NGB/A4VR

Response: Thank you for the information.

31. **Initially, I considered additional flow from the Meadow Hill subdivision to the north of I-84 may be contributing both to the lag of peak flow and increased volume. However, field reconnaissance by the QCWA indicate the flow from Meadow Hill actually goes into a stream immediately to the East of The Business Park and eventually under 17K and down to the rear of the Hilton on 17K.**

Response Provided By: NGB/A4VR

Response: Thank you for the information.

Slide 27 - Total Outflow

32. **There is no graphic presentation for “Surface to Pond” that I saw. Was/Is the surface volume assumed to be the Total Outflow less the flow from the gauged conduits?**

Response Provided By: NGB/A4VR

Response: The surface volume is assumed to be the Total Outflow from Outfall 10 less the flow from the gauged conduits.

33. **If so, what is the volume calculated and actually measured?**

Response Provided By: NGB/A4VR

Response: During the 3 and 4 October 2019 storm event, 0.53 inches of rain fell in a 19.5-hour period. The five outfalls that were monitored provided a cumulative volume of 4.416 million gallons in a 24-hour period.

34. **Are any grab samples collected routinely collected for analysis similar to other source locations?**

Response Provided By: NGB/A4VR & USACE

Response: Grab samples have been collected, but not routinely. When Phase 2 pilot operations resume for the ISWTS, we are planning to collect influent Recreation Pond PFAS samples routinely during system operations.

Slide 28 - Assessment Outcomes

35. **Text discusses “Direction for Future Sample” Is there currently any ongoing routine sampling program for PFAS monitoring in outfalls and/or monitoring wells previously established and sampled for relevant contaminants?**

Response Provided By: NGB/A4VR

Response: See response to Question 34. Additional sampling will also be done under CERCLA in the RI.

36. **Are PFAS compounds to be included in the closed landfill wells mentioned at the top of this submittal?**

Response Provided By: NGB/A4VR

Response: The project for long term monitoring at Site 3 described in earlier slides will not include PFAS sampling. PFAS sampling in landfill wells will be conducted under a new, separate project for the PFAS RI.

37. Will the RAC be able to contribute to potential sample locations?

Response Provided By: NGB/A4VR

Response: During the RI, a Work Plan will be developed and submitted for stakeholder review. The RAC will have an opportunity to comment at that time.

Slide 38- On Base Sampling Locations

38. These slides differentiate between detectable concentrations and those that exceed the EPA lifetime health advisory (LHA) level of 70 ppt. We request that in the future, all slides like these also show which samples exceed the proposed NYS DOH MCLs of 10 ppt PFOS or 10 ppt PFOA.

Response Provided By: NGB/A4VR

Response: The ANG complies with state environmental cleanup laws to the extent authorized and required by Federal cleanup law. Under the Safe Drinking Water Act (SDWA), there are currently no federal Maximum Contaminant Levels (MCLs) established for PFOS/PFOA. New York does have proposed state MCLs. However, until MCLs are promulgated and the Department of Defense (DoD) has evaluated their applicability, the DoD is not able to use state MCLs as screening levels.

39. The Site Inspection is an early step in the process, before a Remedial Investigation that delineates the full extent of contamination or the Feasibility Study, that defines the solutions that may be viable. We understand it as a step to determine “if” there is a problem. We have known that there is a problem originating from the ANG for about four years. What specifically have you discovered that NYS DEC had not already discovered that is relevant to future plans for a full remediation?

Response Provided By: NGB/A4VR

Response: The ANG conducted a SI and follow on Expanded SI to verify releases and map possible pathways to drinking water sources. Since the NYSDEC study in 2014, the ANG SI and Expanded SI work has included the installation of 38 new monitoring wells and the collection of 49 groundwater samples, 97 stormwater samples, 84 soil samples, and 42 sediment samples. These results provided the ANG with the necessary information to identify both presence or absence of contamination in specific areas and existing data gaps to be addressed during the RI. The ANG also completed a stormwater study which provided insight into the sources of PFAS entering Rec Pond, as well as the volumes of wet weather flow. A stormwater model was developed as a part of this study and will be further populated/refined during the RI to evaluate remedial options in the FS.

40. When will you begin the Remedial Investigation and Feasibility Study?

Response Provided By: NGB/A4VR

Response: The ANG investigation work and response actions are guided by CERCLA, applicable state laws, and the EPA LHA for drinking water. The ANG is moving forward aggressively in accordance with the CERCLA process to fully investigate releases, prioritize responses, and determine appropriate cleanup actions based on risk, which is a multi-year effort. The DoD prioritizes sites across the country for cleanup using a risk-based process – essentially worst first. One of the risk-based processes that the DoD uses is the Relative Risk Site Evaluation (RRSE) framework for evaluating relative risk and sequencing the start of RIs for all cleanup sites, including PFAS sites. The RRSE is a methodology used by all DoD Components to evaluate the relative risk posed by a site in relation to other sites. The ANG is currently conducting RRSE for all 75 installations where PFAS has been investigated by the ANG. RIs will be conducted based on the results of that analysis (i.e., worst first). ANG cannot estimate the RI start date until the RRSE process is complete.

Slide 40

41. What are these measurements, when converted to parts per trillion (ppt)?

Response Provided By: NGB/A4VR

Response:

Soil	ND – 520,000 ppt
Sediment	ND – 586,000 ppt
Groundwater	ND – 6,530 ppt
Storm water	ND – 515,000 ppt
Surface water	ND – 2,846 ppt
LHA for drinking water	70 ppt
Screening level for soil/sediment used in SI	1,260,000 ppt

42. Are we correct in understanding that ug/L, used for water measurements, is equivalent to ppb or parts per billion, which is 1,000 times more concentrated than ppt?

Response Provided By: NGB/A4VR

Response: Yes.

43. Are we correct that mg/kg is equivalent to parts per million (ppm), which is 100,000 times more concentrated than ppt?

Response Provided By: NGB/A4VR

Response: No, mg/kg is equivalent to ppm, which is 1,000,000 times more concentrated than ppt.

44. If that math is correct, the most concentrated stormwater, groundwater and surface water samples were 515,000 ppt, 6,530 ppt and 2,846 ppt, respectively.

Response Provided By: NGB/A4VR

Response: Correct.

45. If that math is correct, the most concentrated soil and sediment samples were 520,000 ppt and 586,000 ppt, respectively.

Response Provided By: NGB/A4VR

Response: Correct.

46. We request that, in the future, any time concentrations of PFAS are reported, they should be reported in ppt (parts per trillion), since this is the measurement that Community RAC members and the public are most familiar with, based on EPA guidelines, NYS DOH proposed MCLs and past NYS DEC reporting of its investigations of PFAS at/near the ANG. If reporting in other units on any slide, the concentration in ppt should be reported side-by-side for consistency and clarity.

Response Provided By: NGB/A4VR

Response: Concur for RAC slides. However, analytical results in reports may not always be in ppt. A conversion table will be provided in the Expanded SI Report.

Slide 41 - SI Sampling Locations Off-Base

47. Given the wide range in concentrations in sampling results, it would be useful to add a slide to each map that shows the variation in concentrations for those samples that exceed the LHA. For instance, the size of the icon used could correspond with order-of-magnitude differences (those exceeding 70 ppt vs those exceeding 700 ppt vs 7000 ppt vs 70,000 ppt and 700,000 ppt.) Better, these would start with NYS DOH MCL as the baseline, and scale from 10 ppt to 100,000 ppt.

Response Provided By: NGB/A4VR

Response: Because this map represents multiple environmental media with different screening levels (e.g., soil vs groundwater), that type of shading could be misleading. This map was meant to give the audience an overall view of exceedances in environmental media over a geographic area. Also, see responses for Question 38 regarding use of state MCLs.

Slide 42 - SI Sample Results Off-Base

48. Same comments as for Slide 40

Response Provided By: NGB/A4VR

Response: See responses above for Slide 40.

49. If math is correct, the most highly concentrated sediment sample was 424,000 ppt. The most highly concentrated groundwater and surface water samples were 1,138 ppt and 15,170 ppt, respectively.

Response Provided By: NGB/A4VR

Response: Correct.

Slide 46 - Background

50. Has any source of continued turbidity been determined or even theorized?

Response Provided By: NGB/A4VN & USACE

Response: Suspended solids are the theorized source of the continued turbidity. Elevated influent turbidity was observed during rain events.

51. It is our understanding from the past RAC meeting that this system has the capacity to treat only baseflow in dry weather, and is bypassed in even in cases of small rainfall events. Is that correct? What size storm will your redesigned system have the capacity to treat? IT's important that it have the capacity to be operational in all weather conditions, including rainfall that is projected to increase in future years due to climate change.

Response Provided By: NGB/A4VN & USACE

Response: Question 1: Yes, the system was designed to treat what we knew to be baseflow at the time of design.

Question 2: The system has not been redesigned. It has been optimized to treat the same flow with enhanced efficiency. The ISWTS at Rec Pond is an interim measure, and a permanent treatment system at Rec Pond may not be the final remedy for this site.

52. Given the system's capacity is too small to remain operational during many, if not all, rainstorms, how and when will the ANG increase the system's capacity?

Response Provided By: NGB/A4VN

Response: The ANG investigation work and response actions are guided by CERCLA, applicable state laws, and the EPA LHA for drinking water. Although the EPA's LHA applies only to drinking water for humans, we are working with our partner agencies to address PFOS/PFOA challenges more comprehensively, and address gaps in funds, authorities, and legislation. At Stewart ANGB, NYSDEC has already completed a response action for drinking water by installing a drinking water treatment system at Lake

Washington to reduce PFOS/PFOA to below the EPA LHA. The ANG will continue to follow the CERCLA process to identify further response actions, which is a multi-year effort. The ANG will evaluate results from the Stewart ANGB ISWTS, Expanded SI, and RI during the FS to determine future options for response actions under CERCLA. In the meantime, one technical solution that Stewart ANGB is exploring with other stakeholders is to reduce the amount of water coming into Recreation Pond so that the ISWTS is able to treat larger rain events.

- 53. In January, it was estimated that it could be 5-7 months before the system was operational again. It's been almost 5 months. When will it be operational?**

Response Provided By: NGB/A4VN & USACE

Response: The system is currently on schedule to be operational in July.

Slide 47 - Schematic

- 54. Is the initial separator in the system intended for oil/water separation, sediment removal...?**

Response Provided By: NGB/A4VN & USACE

Response: It is intended for sediment removal.

- 55. How does it operate (screens, centrifugal,..) and at what capacity? Is this the sand filter mentioned later in the text?**

Response Provided By: NGB/A4VN & USACE

Response: Question 1: The separator uses centrifugal action to remove grit, sand, fines and other solids from the water and serves as a pre-filter to the system.

Question 2: The separator has a capacity of 500 gallons per minute (gpm).

Question 3: The separator is not the same as the sand filters or bag filters. Each of these components serve different purposes for the overall ISWTS.

- 56. What percentage of total Rec Pond discharge will the system be able to effectively treat?**

Response Provided By: NGB/A4VN & USACE

Response: The system design is based on a maximum treatment rate of 500 gpm. The treated water portion going over the weir varies based on the amount of infiltration and surface water run-off entering the pond.

Slide 48

57. **The text mentions influent testing for additional water quality parameters including BOD. (PFAS is itself a drinking water quality parameter) Is BOD measured in the effluent to assure no further degradation of yet another important indicator?**

Response Provided By: NGB/A4VN & USACE

Response: Biochemical Oxygen Demand (BOD) was not a parameter monitored as part of treatment system operations. However, monitoring was performed for other water quality parameters including Chemical Oxygen Demand (COD).

Slide 49

58. **Who performs the various levels of data review?**

Response Provided By: NGB/A4VN & USACE

Response: The data review is performed by BERS-Weston (contractor) and verified by USACE/ANG.

Slide 50

59. **The statement that ng/L is equivalent to ppt here is helpful. Most helpful would be to consistently report concentrations in ppt, as stated above in discussion of Site Investigation (SI) sampling results.**

Response Provided By: NGB/A4VR

Response: See response to Question 46.

Slide 53 & 54

60. **The meaning of this data is pretty hard to decipher. Data can be cleaned up for presentation in ways that will make it easier for the RAC members to understand. For instance, rather than using the U and J flags, these values can be reported with symbols that are more familiar. For example: results that are below the limit of detection, currently marked with a number and the U flag, can be simply presented as "<LOD." For concentrations between LOD and DL, currently marked with the J flag, the concentration can be reported with the ~ symbol to indicate uncertainty. Additionally, as is the case in other slides, the results that represent PFAS breakthrough or filter failure could be presented in red to call attention easily to meaningful data.**

Response Provided By: NGB/A4VN & USACE

Response: We are presenting the data as it will be presented in future reports. The purpose of this slide is to educate the RAC on how to read these reports in their unaltered state.

Slide 55

61. What “known constituents that can cause problems” were looked for?

Response Provided By: NGB/A4VN & USACE

Response: See response to Question 26.

62. Is there any evidence or concern that the presence of deicing fluids in stormwater are contributing to poor performance of the filter?

Response Provided By: NGB/A4VN & USACE

Response: Glycol is the only identified constituent that may be intermittently present in the stormwater and its presence could contribute to biofouling and impact long term resin performance. January glycol sample results confirmed the presence of Propylene glycol, which is used for aircraft deicing at Stewart. Propylene glycol was detected above the LOD but below the DL at Outfall 2 (≈ 8 mg/L), but was below detection limits in the pond/Treatment System Influent. As a result, Propylene glycol was never detected in the Recreation Pond/Treatment system influent during sampling. Influent Glycol was sampled during the pilot study on four occasions between 28 February and 12 March. Only Triethylene glycol was detected in the influent in two of the four samples. Triethylene glycol is not utilized for aircraft de-icing. It can be an additive to hydraulic fluids or aromatics, but we are not certain of the source of Triethylene glycol. Triethylene glycol was detected above the LOD but below the DL (≈ 54 and ≈ 55 mg/L on 10 and 12 March 2020 respectively). We will continue to monitor glycols going forward to confirm the presence and concentration if detected.

63. If so, what has been done to identify the sources of deicing fluids entering Rec Pond, to define how much they need to be reduced to improve the performance of the filter, and to reduce the concentrations of deicing fluids entering Rec Pond?

Response Provided By: 105th Airlift Wing, Stewart Air National Guard Base

Response: Stewart ANGB has a robust glycol recovery program. Prior to de-icing, flightline catch basin valves are closed and snow is removed around the aircraft. A Glycol Recovery Vehicle (GRV) collects de-icing runoff between catch basin locations during de-icing operations. All collected runoff is deposited in the industrial waste water drain grate. After aircraft departs, GRV collects any de-icing fluid that was inaccessible during the de-icing event to the greatest extent possible. Finally, personnel examine the affected catch basins at the completion of glycol recovery. Any present de-icing fluid will be recovered and discharged to the industrial waste water drain grate.

April 13th Spill:

64. **Getting clarification on this question from before: Can you explain how PFAS ended up in Silver Stream (tributary?) as it runs under Bivona Lane 16 Bivona Lane, New Windsor, NY?**
(<https://www.recordonline.com/news/20190423/newburgh-test-results-confirm-pfoa-pfos-in-foam>). Wood Consulting said the stream was a tributary flowing into Silver Stream rather than from it, but that wasn't the what we were referring to. The stream/tributary we're referring to originates at Brown's Pond and runs by the Mobile Home Park, which is concerning enough. It then flows into the filtration plant on Little Britain Rd., then the stream connects with the flow from Rec Pond around the overpass for the Thruway. We believe we heard Elaine mention that there was foaming in Rec Pond on that same day as by the Mobile Home Park and they needed to investigate it further. What is the timeline for this investigation and can updates on this be included in future RAC meetings?

Response Provided By: Port Authority of New York and New Jersey (PANYNJ) & 105th Airlift Wing, Stewart Air National Guard Base

PANYNJ Response: The foam release in April 2019 to Silver Stream was the result of a Hangar discharge at Atlantic Aviation, Hangar 118 located at 1070 First Street New Windsor NY that entered the stormwater drainage system. We understand that this release is being managed by the NYSDEC Region 3 Spills Department with Atlantic Aviation under Spill Number 1900440. Questions about the release should be directed to NYSDEC. Any foam observed at Rec Pond in April 2019, of which PANYNJ is unaware, would be unrelated to the Hangar 118 foam release. It would not make sense that there would have been foaming in Rec Pond related to this release as Rec Pond is also a tributary to Silver Stream; the foam would have had to flow upstream from Silver Stream for a substantial distance in order to enter Rec Pond. The extent of the foaming related to the Hangar 118 release was seen between Breunig Road and the diversion valve/gate at Lake Washington at the intersection of Route 207 and Route 300. The flow path of the stream as described in the question is inaccurate. The portion of Silver Stream that received foam from the Hangar 118 release begins at a small pond located between Jackson Avenue and the Catskill Aqueduct and flows east along Route 207/Little Britain Road. Any foam-impacted stormwater coming off of the airport would have entered this tributary west of the intersection of Breunig Road and Route 207. This flow path ultimately joins with the flow out of Browns Pond near Weather Oak Road and then with the flow out of Rec Pond north of Route 207, in between Square Hill and Silver Stream Roads.

There was no foaming observed in Rec Pond related to the discharge at the Atlantic Aviation hangar in April 2019. At the last RAC meeting, an NGB representative mentioned foam observed in Rec Pond in March 2020. PANYNJ was advised on 1 April 2020 that an ANG contractor had observed foam on Rec Pond on 19 and 20 March 2020 while conducting

work related to the Rec Pond treatment system. Because PANYNJ was not informed of this observation contemporaneously, it had no opportunity to take samples or investigate the composition of the foam.

There was a release of non-PFAS foam at the Airport's North East Fuel Farm on 18 March 2020. This release was immediately contained and PANYNJ is not aware of any foam escaping the immediate area. PANYNJ is also not aware of any hydrological connectivity between the Fuel Farm area and Rec Pond which could have resulted in foam from this release turning up in Rec Pond in the subsequent days. Conjecture about Rec Pond in this context is misplaced without more information. PANYNJ has requested that ANG provide any information it may have concerning the matter.

Stewart ANGB Response: ANG previously provided all relevant information on the March 2020 foaming in Rec Pond via 1) phone calls to PANYNJ on 18 and 19 March 2020, and 2) sharing of photographs with the PANYNJ on 1 April 2020.

Site Tour

65. Can the RAC (and public who are interested) be given a Virtual or socially-distanced in-person tour of the Interim Treatment System at Rec Pond?

Response Provided By: 105th Airlift Wing, Stewart Air National Guard Base

Response: Stewart has approval for the RAC site visit. However, we will be taking into account the Health Protection Condition (HPCON) levels and are waiting until we return to HPCON Alpha. We are currently in HPCON Bravo. Once we reach HPCON Alpha, we will conduct the future RAC tour as we would for other approved site visits and allow the RAC a certain number of guests to accompany the tour. We intend to follow the same format we have offered to our Congressional Delegation and local leaders.

Acronyms & Abbreviations

ANG	Air National Guard
ANGB	Air National Guard Base
AR	Administrative Record
BOD	Biochemical oxygen demand
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COD	Chemical Oxygen Demand
DL	Detection Limit
DoD	Department of Defense
DOT	Department of Transportation
EPA	Environmental Protection Agency
FS	Feasibility Study
gpm	gallons per minute
GRV	Glycol Recovery Vehicle
HPCON	Health Protection Condition
ISWTS	Interim Storm Water Treatment System
LHA	Lifetime Health Advisory
LOD	Limit of Detection
MCL	Maximum Contaminant Level
ND	Not Detected
NYS	New York State
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
PANYNJ	Port Authority of New York and New Jersey
PFAS	Per- and Poly-Fluoroalkyl Substances
PFBS	Perfluorobutanesulfonic Acid
PFHxS	Perfluorohexane Sulfonate
PFHpA	Perfluoroheptanoic acid
PFNA	Perfluorononanoic acid
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate
ppb	parts per billion

ppt	parts per trillion
RAC	Restoration Advisory Committee
RI	Remedial Investigation
RRSE	Relative Risk Site Evaluation
SI	Site Inspection
SIA	Stewart International Airport
SVOCs	Semi-Volatile Organic Compounds
TDS	Total Dissolved Solids
TKN	Total Kjeldahl Nitrogen
TOC	Total Organic Carbon
TSS	Total Suspended Solids
USAF	U.S. Air Force
USACE	U.S. Army Corps of Engineers
VOC	Volatile Organic Compounds