

United States Senate
WASHINGTON, DC 20510-3203

July 17, 2020

Nicole Wireman, REM
Restoration Program Manager NGB/A4VR
National Guard Bureau
3501 Fetchet Avenue
Joint Base Andrews, MD 20762-5157
Re: Draft Final Expanded Site Inspection Report

Dear Ms. Wireman,

I write regarding the Draft Final Expanded Site Inspection (ESI) Report for Per-and Polyfluoroalkyl Substances (PFAS) at the Stewart Air National Guard Base (SANGB) site located in the City of Newburgh, New York. The purpose of this Expanded SI was to assess PFAS concentrations in soil, groundwater, surface water, sediment and stormwater based on the recommendations and Data Quality Objectives (DQOs) identified in the previous SIs and evaluate pathways by which PFAS are transported to surface water bodies, including Lake Washington.

After reviewing the draft document submitted by the 105th Airlift Wing of the New York Air National Guard (ANG) on June 12, 2020, I request that you address the following modifications and clarifications listed below prior to formally issuing the Final ESI. Importantly, several comments listed below for the main body of the report also apply to the Executive Summary. Please revise the Executive Summary to reflect any changes implemented in the report.

1. **Section 1.0 Introduction, paragraph 7:** Please clarify the standard of measurement used in defining the term “elevated” in the sentence "to-date soil samples have not exhibited elevated concentrations of PFAS." Throughout this Expanded SI, all soil and sediment should be screened against 0.13 mg/kg for PFOS/PFOA. When comparing soil data from the Site Inspection (SI) Report to the new SL for soil and sediment, various locations show exceedances and may be considered “elevated” (e.g. 01SB01 has 0.52 mg/kg PFOS, 03SB03 has 0.22 mg/Kg PFOS, 06SB03 has 0.139 mg/Kg PFOS, and 11SB03 (field duplicate) has 0.158 mg/Kg PFOS). The report should clearly reflect new screening levels (SLs) adopted by the Department of Defense (DoD) in October 2019 and acknowledge that previous SI results were screened against the LHA and other SLs prior to the new DoD guidance.
2. **Section 2.3 Geology, paragraph 1:** Please revise this section to include the stratigraphic units underlying the Normanskill Formation and cite the source of the information included in paragraph one discussing the bedrock beneath SANGB. It is unclear whether or not there was a formal, site-wide evaluation of the bedrock at SANGB. Generally, please clarify the scope and methodology used in Section 2.3.

3. **Section 2.5 Hydrogeology, paragraph 1:** Please clarify the conclusion that the Normanskill Formation has “very low permeability and yield low volumes of groundwater” by citing the source that supports this statement. Supporting data should be included in this report.
4. **Section 2.5 Hydrogeology, paragraph 3:** The conclusion that “the subsurface materials do not present a ready pathway for a groundwater plume” does not seem to be supported by the limited evaluation of the bedrock (see concerns expressed in comments 2 and 3). Please provide and cite all potential stream channels and other features in the area that may create preferential subsurface flow pathways. The various subsurface materials that may create “ready pathways” should be fully addressed in the Remedial Investigation / Feasibility Study (RI/FS) given the finding that “groundwater samples that exceed the SL” were discovered at SANGB.
5. **Section 3.4.2 Monitoring Well Development:** LWMW-01 is mentioned for the first time here and it is unclear what the installation process was for LWMW-01 based on Section 3.4.1 or if this is an error and the report sought to reference LWMW-04, the monitoring well at an off-base location mentioned in Section 3.4.1.
6. **Section 3.6.4 Stormwater Monitoring Station Installation:** According to this section, “a rain gauge was installed at the OF 010 monitoring station to collect and transmit data in 15-minute intervals with an accuracy of 0.01 inches.” Although the Interim Storm Water Treatment System (ISWTS) was “installed in accordance with the Clean Water Act, and is not a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) action,” the data collected up until the rain gauge was removed on 31 December 2019 should be provided as part of the ESI. Please clarify (1) whether the rain gauge was operational between 17 October 2019 and 31 December 2019 (2) whether the DoD collected that data for any purpose, including for purposes outside the scope of this report and (3) why monitoring data for rain events greater than 0.5 inches was not collected accounting for the construction and operation of the ISWTS on Recreation Pond at the site of Outpost 010, the outlet from Recreation Pond. Unclear in Section 4.3.1 also which discusses “unanticipated changes” in the design of the ISWTS.
7. **Section 3.9 Management of IDW:** Please clarify and provide data supporting the assertion that “water with PFOS/PFOA concentrations above 70 ppt will be treated through the Recreation Pond ISWTS to remove PFAS” to support Management of IDW. According to Section 4.3.3, “samples were not collected at the Recreation Pond outfall during the 07 November 2019 and 09 December 2019 storm events due to construction and operation of the ISWTS.” Management of IDW using the ISWTS cannot be presumed without supporting data surrounding the proven success of the ISWTS. Available monitoring data collected at Outfall 010 and other locations, the rain gauge data, and the 9 December 2019 storm event which occurred the day before the 10 December 2019 failure of the ISWTS should be compared and scrutinized in the RI.
8. **Section 3.9 Management of IDW:** Please clarify how the seven (7) barrels of IDW with PFAS levels above 70 PPT were disposed of. Specifically, what date and time were they processed through the ISWTS and what sampling was done to ensure this influx in PFAS did not push the outflow of the ISWTS above the current outflow limit. Was any additional sampling done post- disposal for both water and soil?
9. **Section 4.2.5 Dry Weather Field Sampling and Expanded Inflow Investigations, paragraph 1:** Please cite the data supporting the “historical stormwater sampling activities” done by the NYSDEC and DoD that are relied upon in this Section for further sampling in the appendix.

10. **Section 4.2.5 Dry Weather Field Sampling and Expanded Inflow Investigations, paragraph 3:** Please provide additional historical background (including past PFAS/PFOS concentrations) as to why this 6-inch diameter plastic storm drain line on the east side of the current Fire Station was selected for a flow test. Although the results were “inconclusive” please explain why an additional test was not conducted assessing the potential scenario mentioned, where the water introduced into the line “exfiltrated during the test” causing potential contamination.
11. **Section 4.3.1 Plan Deviations:** Please explain the “planned water level and flow rate measurements” that were not evaluated in this report because of “unanticipated challenges in the design of the ISWTS” and detail what “challenges” were not accounted for in the ESI planning process. Unclear what the original plan was surrounding monitoring the ISWTS data at Outpost 010 under the ESI given the ISWTS only became operational on December 5, 2020, according to DoD public meeting documents.
12. **Section 4.3.2 Stormwater Monitoring Sampling:** Please explain why this was done every 15 minutes. Is this short enough intervals to assess flash responses during storm events, exacerbated by the pavement? If not, what plans does ANG have to addressing this in the Remedial Investigation?
13. **Section 4.3.3 Storm Flow Sampling for PFAS and Select Pollutants:** Please explain how the ISCO automated samplers, as partially defined in Section 3.6.2 Automated Stormwater Sampling, accurately portray stormwater modeling efforts. Specifically, please explain how the “time of concentration” (defined in the ESI glossary as the time between the start of a runoff event and the time when the entire watershed is contributing flow) was calculated for each outfall catchment and what parameters are used by ISCO to calculate a weighted PFAS concentration for the EMC.
14. **Section 4.4.4 SWMM Calibration, paragraph 2:** Define “reasonable range” for data validation purposes in assessing final calibrated values for each subcatchment within the study area.
15. **Section 6.1.5 Stormwater Monitoring Results, paragraph 1:** Clarify that PFOS and PFOA concentrations are depicted in Figures 8-1 through 8-4 while rain gage data is provided in Figures 8-5 and 8-6.
16. **Section 6.1.6 Groundwater Contribution to and from Recreation Pond, paragraph 1:** Define RPMW-01 again by citing Section 3.4.2 on monitoring well development.
17. **Section 6.1.6 Groundwater Contribution to and from Recreation Pond, paragraph 2:** Explain positioning of RPMW-01 (south and after Rec Pond) and MW-112 (north and before Rec Pond) in relation to Rec Pond when explaining that “MW-112 spikes sharply” and “RPMW-01 likely reflects the pond level.”
18. **Section 6.2.1 Stormwater Monitoring Stations:** Please address the extreme changes in weather conditions (eg. dry vs. wet, extent and duration of rainfall, whether sampling data was collected at all monitoring stations) and explain how these conditions impact the flow rate and discharge volumes that are listed for each outfall and/or monitoring well.
19. **Section 6.2.2 Stormwater Sampling for PFAS:** Please further explain and support with data the reasoning behind the significant variation of PFOS/ PFOA mean concentrations at each outfall. For example, at Outfall A, the 16 October 2019 rainfall event (2.03 inches lasting 11 hours produced a PFOS and PFOA mean concentration of 0.107 µg/L but a similar rainfall event on Dec 9, 2019 (.54 inches lasting 48 hours) that produced a much higher PFOS and PFOA concentration of 0.956 µg/L.
20. **Section 6.3.2 Data:** This model requires more data to be refined, as described in 6.3.2, “The comparison results indicate that all of the outfalls would benefit from further inspections to refine the inputs into the calibrated model. At a minimum, all of the outfall

discharging into Recreation Pond would benefit from additional flow monitoring and sampling, including the collection of discrete samples throughout the event, at location upstream of the outfall to help refine the calibration.”

21. Does the ANG have plans to incorporate pore water sampling to refine the conceptual site model? If not, why not?
22. The presence of glycol was referenced in the Draft Expanded SI Report to evaluate impacts from the retention basins. Can glycol be used as an indicator in other areas? What is the connection between glycol and PFAS?
23. What does ANG propose to do about SLMW 21S, which would exceed the currently proposed NYS MCL and presumed Water Quality Standards should they become law?
24. There are exceedances in MW-07 and detects in MW 14. Does ANG plan to include offsite wells at similar depths in the Remedial Investigation? If so, please elaborate on the current plan. If not, please justify why not.
25. In the Final Site Inspection Report Addendum (3/1/2019), several offsite monitoring wells (LMMW-01, LWMW -02, and SLMW-20D) had PFAS detects but did not exceed the SL used at that time - 70 ppt. The total PFOA/PFOS for LMMW-01 was 0.038 ug/L, which is barely below the current SL at 0.04 ug/L. All of these wells would exceed the proposed NYS standard of 0.01 ug/L. How does the ANG plan to address this?

In addition to these technical questions, I want to follow up on a few more general points:

Washington Lake and Other Receptors:

Only a single receptor, Washington Lake, is recognized in the Draft Expanded SI Report. There are at least five other receptors that need to be investigated as part of the Remedial Investigation, to understand and eliminate any pathways from the SANGB to these receptors, including potential groundwater pathways. These receptors include:

- City of Newburgh’s Browns Pond reservoir in Town of New Windsor, which is contaminated with PFAS,
- Public and private wells in the watershed surrounding Beaverdam Lake, which has confirmed PFAS contamination,
- Town of New Windsor’s Kroll well, which is part of its public drinking water and which is contaminated with PFAS,
- Town of New Winsor’s Butterhill wells, which are part of its public drinking water system and which are contaminated with PFAS,
- Private wells in the Town of New Windsor and Town of Newburgh that are contaminated with PFAS, and
- Fish in Recreation Pond, Silver Stream, Washington Lake and Moodna Creek, which are under state catch and release health advisory due to contamination with PFAS. Contaminated fish are a concern for both human health exposure and ecological effects.

While not exhaustive, these specific pathways of PFAS contamination should be identified for study as part of the Remedial Investigation:

- Known surface water pathway from SANGB to Recreation Pond, Silver Stream, Washington Lake and Moodna Creek, affecting fish,
- Potential groundwater pathway through fractured bedrock to Browns Pond,
- Potential groundwater pathway through fractured bedrock to Kroll well,

- Known and potential surface and groundwater migration pathways through sand-and-gravel aquifer from Moodna Creek to Butterhill wells,
- Known surface water pathway from SANGB to Beaverdam Lake,
- Potential groundwater migration pathways from Beaverdam Lake and its tributaries to public or private wells, and,
- Potential groundwater migration pathways from SANGB to private wells in Town of New Windsor and Town of Newburgh.

Furthermore, the Draft Expanded SI Report states that “[a] groundwater PFAS plume does not appear to be migrating to or impacting Lake Washington.” It does not appear that such a conclusion is supported by evidence in the record, can you please expand on how you are certain this is the case? Hydrological evidence seems to suggest that Washington Lake may be partially groundwater-fed and we know that on-base groundwater at various depths is contaminated with PFAS, impacting off-base groundwater as well. To the extent that PFAS is emanating from Stewart, and possibly impacting groundwater in and around the base, it should be studied whether PFAS is infiltrating Washington Lake.

Additionally, the Draft Expanded SI Report shows that groundwater is a net source of PFOS and PFOA into Recreation Pond, which discharges to Silver Stream and ultimately, Washington Lake. At the same time, an estimated 30 µg/day of PFOA and PFOS seep into groundwater from Recreation Pond. And downgradient from Recreation Pond, monitoring well RPMW-01 shows levels of PFOS almost fifty times higher than New York State’s pending drinking water standard.

Moreover, please clarify the statement “PFAS were not detected in groundwater at elevated levels across the entire SANGB but isolated to distinct areas” as Figure 10 shows that groundwater wells downgradient from known and suspected PFAS discharges show exceedances of the ANG’s inflated SLs.

Finally, the Draft Expanded SI Report states that “[e]xcept for SL exceedances near Recreation Pond, there were no screening criteria exceedances in off-Base groundwater.” In discussing Washington Lake groundwater results, the Draft Expanded SI Report notes “[p]revious groundwater results . . . showed detections of PFOS”, but goes on to state that “[n]o previous groundwater sample results at [Washington Lake] wells exceed the SL.” This is contradicted by the March 2019 Final Site Inspection Report Addendum, which shows significant levels of PFOA and PFOS for nearly all groundwater wells, including one result exceeding the 40 ppt SL for PFOA and PFOS used in the Draft Expanded SI Report, and another result just shy of that level. Can you please clarify this discrepancy?

Groundwater:

After reading the report, it appears that PFAS is plausibly infiltrating the SANGB storm drain system through the groundwater, and none of the evidence presented in the Draft Expanded SI Report rules out that. The ANG acknowledges that “[g]roundwater infiltration through joints and cracks in stormwater pipes results in a consistent dry weather base flow,” and that PFAS are “consistently detected in catch basins during dry weather sampling events” above the SL. Furthermore, the video surveys found “observable groundwater infiltration” through “[c]racks and breaks” from the 17K culvert as well. What does the ANG plan to do during the Remedial Investigation to investigate this possibility?

Additional Sampling:

The Expanded Site Investigation utilizes single sources of data for some of its conclusions, does the ANG plan to resample to ensure there is not variance in the data. Specifically:

- To “Evaluate Surface Water and Groundwater PFAS Contributions to and from Recreation Pond,” a single sample was collected from a single new monitoring well.
- To “Evaluate Surface water and Groundwater PFAS Contributions to Lake Washington,” a single sample was collected from a single new monitoring well, in addition to existing monitoring wells, many of which showed extensive evidence of contamination.
- To “Evaluate Soil and GW Quality at Potential Release Location (PRL) 16,” a single sample was collected from a single new monitoring well.

In addition, at least three existing monitoring wells, MW-10, MW-12, and MW-15, could not be sampled because they were dry at the time of sampling. Please respond with your plans to address this lack of data.

Furthermore, testing data for both ground and surface water in the vicinity of the landfill show SL exceedances, including measurements as high as 1,220 and 1,830 ppt combined PFOA and PFOS, more than 100 times greater than the proposed New York State MCLs. What is the plan for further study of this area? What actions will be taken under the Remedial Investigation to study and remediate this contamination?

Next, the Draft Expanded SI Report states that, “[s]ediment 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 and surface water.” What actions will the ANG be taking to ensure this is the case during the remedial investigation? Will remediating this source of PFAS be a part of the Remedial Investigation?

Finally, the Draft Expanded SI Report details only 10 soil samples from three locations. As the Base spans approximately 250 acres, this seems insufficient to characterize the extent of the PFAS soils contamination. From what we do know, the available testing data reveals that PFAS concentrations on the Base are highest in soils. What plans does the ANG have to specifically assessing, reporting, and remediating PFAS in the surrounding soil?

Thank you for your time and attention to this matter. Please do not hesitate to reach out to my staff with any questions.

Sincerely,



Charles E. Schumer
United States Senator