



The State of New Hampshire  
**DEPARTMENT OF ENVIRONMENTAL SERVICES**



**Robert R. Scott, Commissioner**

EMAIL ONLY

January 16, 2019

David Sullivan, Town Administrator  
Town of Windham  
4 North Lowell Road  
Windham, NH 03087

**Subject:** **Windham** – Windham Senior Center Area, North Lowell and Fellows Roads  
DES Site #**201709003**, Project #38086

**Revised Site Investigation Report**, prepared by Nobis Group, Inc. (Nobis),  
dated November 19, 2018

**Revised Site Investigation Tables**, prepared by Nobis dated January 2, 2019

Dear Mr. Sullivan:

The New Hampshire Department of Environmental Services (NHDES) has reviewed the referenced submittals for the Town of Windham (Town) Senior Center Area site in Windham, New Hampshire (NHDES Site No. 201709003), and concludes that the report generally meets the requirements of Env-Or 606.03 for a Site Investigation Report.

Based on the report findings, NHDES concurs that releases of per- and polyfluorinated alkyl substances (PFAS) likely occurred at or proximate to the former Town Fire Station at 3 North Lowell Road, and the current Town Fire Station and Town Fire Training Area (FTA) at 3 Fellows Road. The releases are believed to be associated with historic use of Class B firefighting foam (e.g., Aqueous Film Forming Foam [AFFF]). The extent of impacts is not fully delineated, and therefore a supplemental Site Investigation (SSI) is warranted.

Please complete SSI-related activities in consideration of the following comments.

1. As required by Env-Or 606.04(g), please provide further background information about the former and current Fire Stations and the FTA, including a description of uses of structures and unimproved areas. Please provide detailed site plans that satisfy the requirements of Env-Or 606.04(m), and show: the location of potential contaminant sources; stormwater management structures (e.g., catchbasins, piping, and outfall locations) and overland drainage pathways; underground utilities (e.g., floor drains, foundation drains, oil-water separator(s), septic tank, leachfield); and current and historic investigation locations.
2. PFAS were observed in the outfall water, outfall sediment, and nearby soil sample from monitoring well MW-2 at the current Fire Station. Nobis indicates that outfall water represents stormwater runoff from the FTA and impervious areas at the Fire Station, and discharges toward the pond to the west; however, NHDES understood that the runoff from the FTA sheet flows elsewhere, and the outfall receives effluent from an oil-water

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separator, and discharges to a northerly flowing swale. Information requested in Comment #1 above will be helpful in providing clarification. In the SSI, please confirm the source of impacts. If it is shown that there is an ongoing release(s) of regulated contaminants from current activities, NHDES advises the Town to evaluate methods to terminate the discharge.

3. Shallow soil samples collected from the FTA contained elevated concentrations of some PFAS (notably perfluorooctane sulfonic acid [PFOS] at 200 micrograms per kilogram [ $\mu\text{g}/\text{kg}$ ]), While the detected levels are less than NHDES' Direct Contact Screening Levels of 500  $\mu\text{g}/\text{kg}$ , we note that NH Soil Remediation Standards (SRS) relative to leaching have not yet been established for PFAS and that NHDES is concerned that the PFAS in the soil may be a long-term threat to drinking water quality. Our concern is based on the conceptual site model, with groundwater quality impacts interpreted to be caused by migration of PFAS through soil to groundwater. Some literature suggests the potential for PFOS to leach from soil under certain conditions to cause groundwater quality impacts at soil concentrations significantly less than those observed during this study.<sup>1</sup>

Based on these concerns, NHDES requests that the lateral and vertical extent of the source of PFAS in soil at the FTA be further delineated in the SSI. If the cleared areas to the south, east, and northeast of the FTA shown on historical aerial photos were also used for fire training activities, or could have received runoff from the FTA, please include these areas in the investigation. Until the extent of the impacts to soil and its effect on drinking water quality at the Site are understood, it is difficult to evaluate an effective remedy.

4. PFAS were detected in the surface water sample collected from the pond at 32 Indian Rock Road (behind Anytime Fitness). The report suggests that the pond is impacted by runoff from the current fire station and FTA; however, we note that the PFAS composition appears somewhat similar to that observed in bedrock groundwater at 30 Indian Rock Road (Dunkin Donuts) and 3 Fellows Road (the former Fire Station) suggesting a possible alternative PFAS source may contribute to contamination observed at this location. In addition, PFAS were detected in the Golden Brook sample, which was collected somewhat down or sidegradient from the former Fire Station, based on the interpretation of shallow overburden groundwater flow in the report.

Although NHDES does not currently have surface water standards for PFAS, some PFAS were present at concentrations greater than respective AGQS. As such, the SSI should consider the potential for surface water transport, and assess whether the contaminated surface water associated with the pond and Golden Brook could impact potential drinking water receptors. The SSI should further investigate the potential source(s) of impacts to the pond and Golden Brook.

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<sup>1</sup> Table 2 of the Interstate Regulatory Technology Council (ITRC) PFAS Fact Sheet for Regulations, Guidance, and Advisories ([https://pfas-1.itrcweb.org/wp-content/uploads/2018/12/ITRCPFASFactSheetSect4Tables\\_November2018.xlsx](https://pfas-1.itrcweb.org/wp-content/uploads/2018/12/ITRCPFASFactSheetSect4Tables_November2018.xlsx))

5. The extent of groundwater quality impacts greater than AGQS for regulated PFAS are not fully delineated in either the overburden or bedrock aquifers. NHDES notes relatively high concentrations of unregulated PFAS in monitoring well MW-1 at the current Fire Station. Elevated PFAS concentrations are present in bedrock groundwater throughout the study area, including in deep bedrock (e.g., in a well more than 1,000 feet deep), although the locations and depths of water producing bedrock fractures are unknown.

Given the impacts to drinking water wells, and in consideration of the hydrogeologic complexities with this site, the SSI should include:

- further delineation of the extent of impacts in overburden groundwater from each source area;
  - additional monitoring of groundwater quality in overburden monitoring wells and surface water locations (see Comment 4) to further assess trends and potential temporal variation in water quality; and
  - additional monitoring of groundwater quality in bedrock water supply wells in support of the development of a groundwater management zone (GMZ). NHDES anticipates that the SSI report will include preliminary delineation of a GMZ, with the proposed GMZ limits overlain on a tax map.
6. The SSI should verify whether there are other potential drinking water receptors within 1,000 feet of locations with exceedances of AGQS. Given the absence of public water service and the number of developed properties in the site vicinity, NHDES suspects that there may be several water supply wells proximate to the site that have not yet been assessed. In identifying potential receptors, consider the potential influences on groundwater transport through bedrock fractures following the north-northeast to south-southwest lineament documented in the report, including areas on Collins Brook Road, as warranted.

If other potential receptors are identified, please sample drinking water supply wells to assess for potential PFAS impacts associated with this site. The SSI report should include copies of correspondence with property owners transmitting the water supply well sampling results. Should additional water supply wells be identified through the SSI with PFAS concentrations greater than AGQS, it is NHDES' expectation that the Town will provide an alternative water supply.

The SSI report should include updated figures that show the location of all known and suspected water supply wells in the site vicinity. Please confirm the locations and consistently label the wells on figures, tables, and sampling documentation; we note some discrepancies between the report and NHDES and Town of Windham GIS mapping. Please also confirm the location of the daycare/preschool identified in the report, and whether the well was sampled during the site investigation. Please update the receptor survey regarding the presence of mapped wetlands (see NHDES OneStop) and the discharge location for Golden Brook.

It is NHDES' expectation that the Town will continue to provide and maintain an alternative water supply source to those properties previously identified (or identified through the SSI) with documented exceedances of PFAS in drinking water that are shown to be attributable to the releases at the Site. Bottled water is considered a temporary solution until an appropriate remedy can be selected and implemented.

7. NHDES appreciates your assistance with reporting the site PFAS data to the NHDES Environmental Monitoring Database (EMD); please continue to report PFAS data to the EMD within 45 days of data collection. The station names used for reporting data to EMD should be confirmed with NHDES HWRB prior to upload, as there were some duplicate locations incorrectly added during the SI data upload.

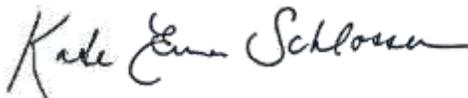
NHDES does not need to review and approve a work plan for the SSI, but is available to meet with the Town and the Town's consultant to discuss the scope, if desired. NHDES' expectation is that the SSI report will be submitted to NHDES during the fall of 2019.

NHDES recognizes that the use of Class B foam is paramount in the protection of life and property. If the Town chooses to continue fire training activities with Class B foam at this site, we strongly encourage you to consider the use of fluorine-free training foam and/or to implement Best Management Practices (BMPs) to contain, collect, and dispose of any PFAS-containing materials used in order to prevent ongoing PFAS releases. For reference, please see a recently published fact sheet<sup>2</sup> that outlines BMPs to identify, handle, store, capture, collect, manage, and dispose of Class B firefighting foam.

As discussed, the Fire Department well (or any well known to be impacted by contamination at levels exceeding applicable AGQS) should not be used for operations unless the water is treated prior to use.

NHDES appreciates your efforts to address the impacts associated with PFAS releases in the study area. Should you have any questions about the comments herein, please contact me at NHDES' Waste Management Division.

Sincerely,



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cc: Amy Doherty, P.G., State Sites Supervisor, HWRB  
Jason Pelchat, Nobis Group  
Attention Health Officer, Town of Windham

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<sup>2</sup> ITRC PFAS Fact Sheet for Aqueous Film-Forming Foam [https://pfas-1.itrcweb.org/wp-content/uploads/2018/10/pfas\\_fact\\_sheet\\_aff\\_10\\_3\\_18.pdf](https://pfas-1.itrcweb.org/wp-content/uploads/2018/10/pfas_fact_sheet_aff_10_3_18.pdf)