



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Robert R. Scott, Commissioner

EMAIL ONLY

August 20, 2018

Christopher S. Angier
Senior Environmental Project Manager
Saint-Gobain Performance Plastics
14 McCaffrey Street
Hoosick Falls, NY 12090

Subject: **Merrimack** – Saint-Gobain Performance Plastics, 701 Daniel Webster Highway
DES Site #199712055, Project #36430

On-Property Site Investigation Work Plan, Saint-Gobain Performance Plastics, prepared by Golder Associates, Inc., dated June 8, 2018

May 2018 Unvalidated Groundwater Data Submittal, Saint-Gobain Performance Plastics, prepared by Golder Associates, Inc., dated July 13, 2018

On-Property Site Investigation Work Plan Addendum, Flatley Property Investigation, Saint-Gobain Performance Plastics, prepared by Golder Associates, Inc., dated July 27, 2018

Dear Mr. Angier:

The New Hampshire Department of Environmental Services (NHDES) has reviewed the above-referenced submittals prepared on behalf of Saint-Gobain Performance Plastics (Saint-Gobain) by Golder Associates, Inc. (Golder) for Saint-Gobain's facility located at 701 Daniel Webster Highway in Merrimack (Facility).

The work plans present an approach for gathering general data related to the release of per- and polyfluoroalkyl substances (PFAS) from the Facility at both the Facility property and the abutting properties currently owned by the John Flatley Company (Flatley) that were previously owned by ChemFab. NHDES understands that Saint-Gobain plans to implement the scopes of work described in the above-referenced work plans under one mobilization. As such, NHDES reviewed these work plans collectively, and provides comments on both work plans in the sections below.

Given the recent elevated detections of PFAS in groundwater from monitoring wells near the Facility, NHDES requests that you accelerate the proposed site investigation (SI) activities to the extent feasible in order identify and discontinue any potential ongoing releases of PFAS that may be occurring at the Facility.

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On-Property Site Investigation Work Plan

The On-Property Site Investigation Work Plan (Work Plan) addresses twenty-one potential release areas (PRAs). NHDES notes that the Work Plan presents an approach to gathering general data for a number of potential release areas; however, collection of additional data will likely be necessary in select PRAs to address data gaps based on the findings of the proposed work activities. The Work Plan is approved, and an addendum or revision document is not needed, subject to inclusion of the following comments into the scope of work:

1. In previous discussions regarding the SI, NHDES recommended use of a mobile lab to utilize near real-time analytical results to guide placement of subsequent boring / well locations to better characterize the subsurface distribution of PFAS in a timely manner, rather than relying on multiple mobilizations to the Facility. The proposed scopes of work do not include the use of a mobile lab. NHDES notes that based on the findings from the proposed scopes of work, collection of additional data will likely be needed in some areas.

The Work Plan indicates that Saint-Gobain will meet with NHDES within one month of receipt of the first round of analytical data for soil and groundwater samples to discuss the results. If a specific PRA requires additional work, Saint-Gobain will consider submitting a supplemental work plan for additional investigation and adjust the schedule for preparation of the SI Report. NHDES is amenable to this approach, to the extent that it accelerates the investigation of PRAs.

2. Per the current Work Plan, the proposed SI work will be conducted on the exterior of the building only. Due to the potential for releases to have occurred inside / beneath the building, sub-slab borings / wells inside the building may be required in the future to further characterize the extent of PFAS.
3. Elevated levels of PFAS discovered in groundwater at monitoring well GZ-3 after the Work Plan was submitted to NHDES are an order of magnitude greater than at any other Facility well, with a detection of perfluorooctanoic acid (PFOA) at 19,000 nanograms per liter (ng/L). NHDES also notes that the signature of PFAS in the sample from this well is different relative to those from other monitoring well locations. These data suggest a potential release occurred in the vicinity of this monitoring well. Given these elevated detections, completion of additional borings and / or monitoring wells to investigate the source of the release and characterize the vertical distribution of PFAS in the vicinity of GZ-3 is warranted, and should be included in the investigation at this time.
4. NHDES strongly recommends that a well be installed at boring SG-SB-E to evaluate groundwater quality in PRA-2 and PRA-16 adjacent to the stormwater system.
5. At least seven PFAS on the expanded analyte list have been detected in samples collected from various media (i.e., soil, stormwater, surface water, and stack residue / char) at or near the Facility, including 6:2 fluorotelomer sulfonate, a precursor compound, and perfluoro-2-propoxypropanoic acid (HFPO-DA / "GenX"). In addition, different mixtures of PFAS have been detected in groundwater at the Facility,

suggesting the potential for multiple source areas. Based on these results, NHDES maintains its position that the best way to fully characterize the extent of the release of PFAS at the Facility and to identify potential source areas, is to submit all of the samples collected during the SI for the expanded PFAS analyte list and replacement compounds (HFPO-DA and dodecafluoro-3H-4,8-dioxanonoic acid "ADONA") ***At a minimum, given their proximity to potential source areas, samples from proposed locations TMW-F, TMW-E, MW-11S, SG-SB-D, all samples collected in PRA-18 and PRA-19, as well as any other additional borings / wells that will be installed related to the GZ-3 well detections, should be analyzed for the expanded PFAS analytes and GenX / ADONA.***

6. The conceptual site model (CSM) to be presented in the final report should address the presence of all PFAS present in the various media at the Facility, with particular emphasis on differentiating the various release pathways / mechanisms (i.e. air deposition vs. discrete dispersion spills). The CSM should also evaluate/discuss the source of perfluorooctane sulfonic acid (PFOS) present in the subsurface.
7. Golder's proposed approach to evaluate long-term leachability of PFAS from soils to groundwater is to measure PFAS concentrations in groundwater over time. While this approach will provide important information, NHDES believes a more quantitative leachability assessment will be needed as part of a future phase of work. At a minimum, the long-term leachability of PFAS from Facility soils should be addressed in the CSM, particularly how it relates to potential remedial alternatives.
8. Samples collected from PRA-3 (former railroad track area) and PRA-12 (weaving room settling tank area) should be submitted for the non-PFAS analyses listed on Table 3 of the Work Plan. In addition, total Kjeldahl nitrogen (TKN), a common analyte in wastewater analyses, should be added to the list of wet chemistry parameters for groundwater samples collected from wells in PRA-13 (sewer lines) and Flatley wells MW-101, MW-102, and MW-105.
9. According to information provided during a phone conversation with Golder personnel on July 25, 2018, the water-filled underground vault in the vicinity of the hydrotest building is / was connected to a sub-slab water return line. In light of the age of the structure and the potential for cracks to develop in the vault wall, as well as the potential for contaminants to migrate along the sub-slab pipe, NHDES requests sampling and analysis of the water in the vault for PFAS.
10. The Work Plan indicates bedrock monitoring wells will be installed approximately 10 feet into rock. NHDES recommends verification that water-bearing fractures are intercepted in each boring prior to constructing the proposed polyvinyl chloride (PVC) monitoring wells within the boreholes, so that sufficient water is available for groundwater sample collection. Due to the presence of PFAS contamination in several near-by domestic bedrock wells, deeper bedrock monitoring wells may be required in the future to characterize the full extent of PFAS contamination in the fractured bedrock aquifer beneath the Facility.

11. Due to the presence of very large boulders observed on the bed of the Merrimack River near the Facility, NHDES recommends that each deep boring extend several feet into rock to collect data necessary to differentiate till boulders from bedrock.
12. In a letter dated April 13, 2018, NHDES recommended that soil samples be collected from the following intervals down to the water table or bedrock: from 0-2 inches below ground surface (bgs), 2-12 inches bgs, 3-4 feet bgs, 6-8 feet bgs and if necessary at subsequent 5 foot intervals until the boring reaches the water table or bedrock, whichever is shallower. NHDES will approve the work plan with fewer sampling intervals (as described in Table 2 of the Work Plan), though follow-up borings may be necessary to test additional depths depending on the results of the initial round of testing proposed in the subject Work Plan.
13. NHDES appreciates the use of temporary wells to screen groundwater at a number of locations. If possible, NHDES suggests collection of static water level data from the temporary wells to fill data gaps in the water table map. If the temporary well elevations are not surveyed, the water level measurements could be made relative to the ground surface, which can be surveyed at a later date, if necessary. While the accuracy of the water level elevation data produced in this manner will not be as great as with a permanent well, these data could provide general information about the water table configuration. Permanent monitoring wells may be warranted at some of the temporary well locations depending on the results of the groundwater analyses.
14. NHDES requests inclusion of historical aerial imagery, site plans, and topographic maps in an appendix of the SI report.
15. The locations of all current and former interior floor drains should be included in the final report figures.
16. The final report should include a discussion of the results of the sewer effluent treatment system pilot testing and a timeframe for full implementation of the treatment system.

On-Property Site Investigation Work Plan Addendum, Flatley Property Investigation

The On-Property Site Investigation Work Plan Addendum for the Flatley Property Investigation (Work Plan Addendum) addresses several PRAs that are described in the SI and extend onto the Flatley Property that include: PRA-1 Aerial Deposition Area; PRA-3 Former Railroad Tracks; PRA-12 Sewer Lines; and PRA-16 Stormwater System. The Work Plan Addendum is approved, and an addendum or revision document is not needed, subject to inclusion of the following comments into the scope of work:

1. Groundwater flow directions at the Flatley property have not been quantified because only limited subsurface investigations have been conducted on these parcels. Several topographic and hydrogeologic factors complicate the estimation of groundwater flow directions at the Flatley parcels in the absence of groundwater elevation data. Therefore, the proposed monitoring well locations may not actually be downgradient of the potential release areas they are intended to be investigating. Additional wells may be warranted if groundwater elevation data obtained from the initial round of drilling suggest that the wells are not positioned downgradient of their intended targets. NHDES

makes the following recommendations on locations where additional wells could be installed to help inform the understanding of groundwater flow directions:

- a. Data presented to-date suggest groundwater flow from the Facility in the vicinity of proposed monitoring wells MW-110 and MW-112 is towards Dumlupınar Brook. NHDES recommends installation of a well in the southeast corner of lot 6E-3-4 to obtain hydrogeologic information to evaluate groundwater elevations between proposed wells MW-101 and MW-107 to better understand groundwater flow paths.
 - b. NHDES recommends installation of a well on lot 6E-3-6 to resolve groundwater flow directions in this area to determine if a groundwater divide is present between proposed MW-106 and the stream on lot 6E-3-6. This potential well site may be helpful to further evaluate why elevated PFAS levels are observed in surface water in Unnamed Brook, which was sampled by Golder in May 2018¹.
2. Consistent with comment number 5 above, NHDES strongly recommends that all samples be tested for the expanded PFAS analyte list and replacement compounds (HFPO-DA / "GenX" and ADONA). NHDES notes that GenX was recently detected in a soil sample collected from the Flatley Property²). **At a minimum, samples from the vicinity of GZ-3 and the soil detection of GenX should be analyzed for the expanded PFAS analytes and GenX / ADONA.**
 3. Additional soil borings should be installed to further evaluate the extent of elevated PFAS levels in the vicinity of monitoring well GZ-3 and soil boring GZ-106²
 4. Groundwater samples collected from locations immediately downgradient from the sanitary sewer lines should also be submitted for analysis of VOCs, PAHs, and metals. These samples should also be tested for the wastewater parameter TKN.
 5. In July 2018, NHDES observed a small stream flowing out of lot 6E-3-6 that should be sampled for PFAS as part of the SI.
 6. In September 2008, the Town of Merrimack Department of Public Works was notified that water was flowing out of a sanitary manhole that is part of the sanitary sewer line from Saint-Gobain. The manhole was reportedly located close to the railroad tracks and was blocked by woody debris. NHDES requests installation of a well in the vicinity of the sanitary manhole to evaluate if PFAS associated with the 2008 wastewater release resulted in impacts to groundwater.

¹ May 2018 Unvalidated Dry-Weather and Surface Water Data Submittal, Saint-Gobain Performance Plastics, prepared by Golder Associates Inc., dated June 29, 2018

² Limited Soil and Groundwater Sampling – Data Summary Letter, 703 Daniel Webster Highway, prepared by GZA GeoEnvironmental, dated August 8, 2018.

7. A 6-inch diameter exploratory bedrock well was installed on the Flatley property in 2009 that had a reported air-lift yield in excess of 50 gallons per minute (gpm). A NHDES contractor attempted to collect a water quality sample from this well in 2016; however, the well bore was blocked several feet below ground with a material that resembled bentonite. According to a well log reviewed by NHDES, the 600-foot deep well encountered two water-bearing fractures at 81 feet and 275 feet that yielded 2 gpm and 53 gpm, respectively. NHDES recommends rehabilitating this well so that it can be used as a deep bedrock monitoring well. Geophysical logging of this well may be warranted to obtain in-situ data on subsurface fracture characteristics (e.g. strike, dip, etc.) and groundwater flow data in the fractured bedrock aquifer. Such data could inform the CSM, particularly with respect to the larger off-site investigation involving the numerous domestic bedrock water supply wells with PFAS levels that exceed AGQS.

NHDES appreciates your efforts to conduct this site investigation. NHDES welcomes any suggestions and revisions to the schedule and implementation of the SI that would expedite the investigation process while meeting the investigation objectives.

Within two weeks of receipt of this letter, please provide NHDES with an updated schedule for implementation of the SI activities.

Should you have questions regarding this letter, please contact me at NHDES' Waste Management Division.

Sincerely,



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