

DUXBURY SAFE WATER COMMITTEE, INC.
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DUXBURY, MA 02332

April 13, 2021

VIA ELECTRONIC MAIL: mayo@town.duxbury.ms.us

Tracy L. Mayo, Health Agent
Dr. David Brumley, Chair
Town of Duxbury Board of Health
Duxbury Town Offices
878 Tremont Street
Duxbury, MA 02332-4499

Re: Topics for Discussion at the Board of Health's December 19, 2019 Public Meeting

Dear Ms. Mayo, Dr. Brumley, and Members of the Board of Health:

Thank you for including the Duxbury Safe Water Committee, Inc. (the "Committee") on the agenda of the Town of Duxbury Board of Health (the "Board") for its public meeting scheduled for April 29, 2021. In anticipation of the April 29th meeting, this letter serves to revisit and outline our concerns pertaining to the safety of the Town's public water supply, which we would like to discuss with the Board.

1. HISTORY

By way of background, the Committee first appeared before the Board at the Board's December 27, 2018 public meeting to bring to the Board's attention the Committee's concerns regarding certain streets in Town that contained vinyl-lined asbestos cement pipes ("VLAC Pipes") that may have been leaching a dangerous carcinogen, Tetrachloroethylene (a/k/a PCE), into our public water supply. Since that time, it is our understanding that the Town has completed the replacement of all VLAC Pipes, and we are truly appreciative of the Board's support in seeing this project to completion.

The Committee last met with the Board on January 16, 2020. With the onset of the COVID-19 global pandemic, which understandably required the Board's utmost attention, the Committee felt it best to postpone our efforts during 2020. Now, more than a year since our last meeting with the Board, the Committee is renewing its efforts to have the Town address possible groundwater contamination by certain inactive landfills and/or dump sites that may be leaching dangerous contaminants into the ground water, and which contaminants ultimately may be drawn up by the Town wells and private domestic wells in their provision of water for Duxbury residents.

2. STATUS OF INACTIVE LANDFILL

Approximately, 2 ½ years ago, on November 29, 2018, members of the Committee met with the Town Manager, the Director of the Duxbury Department of Public Works (the “DPW”), the Water Department Superintendent, and the Finance Director (the “November 2018 Meeting”) to discuss our concerns about certain inactive landfills and/or dump sites that may be leaching dangerous contaminants into the groundwater, and which contaminants ultimately may be drawn up by the Town wells in their provision of water for the public. Since that time, the Committee has obtained documentation from the Massachusetts Department of Environmental Protection (the “MassDEP”) to better identify the location and status of a dump site of importance. A copy of relevant portions of the MassDEP’s Facility Master File, entitled “Inactive & Closed Landfills & Dumping Grounds,” dated February 2018 (the “MassDEP List”) is attached for your reference as **Exhibit 1**.

In reviewing the MassDEP List, it appears that an inactive landfill, known as Duxbury Landfill, Inc. and/or more commonly as the McNeil Dump (hereinafter the “Inactive Landfill”), exists to the south of the Duxbury Municipal Landfill (see Figure 1 attached as **Exhibit 2**). While the Duxbury Municipal Landfill is monitored through testing of a series of on-site monitoring wells on an annual basis, it was unclear from our November 2018 Meeting with Town officials whether the Town actively collects any information on the Inactive Landfill from monitoring wells either on- or off-site. Further, it is unclear as to whether the Town or the MassDEP have monitored the Inactive Landfill in any way since 1992.

A review of MassDEP records of the file for “Duxbury Landfill, Inc.” indicates that the file has been inactive since 1994, at which time plans to close that landfill were drawn up but not implemented. This is of particular concern, as there is no record of monitoring of conditions at the site since 1992. It is important to note that there are active, Town-owned drinking water wells within 1,000 feet of the edge of this property (the Evergreen Wells). See **Exhibit 2**. The site is well within the Zone II of the drinking water wells and is additionally within a zone of potential direct influence to water quality. Further, the Committee understands that there are a number of residents within close proximity to the Inactive Landfill who have private water wells which serve their homes. While we are given a yearly snapshot of water quality for the Duxbury Municipal Landfill to the north, we have no understanding of groundwater conditions in proximity to the unlined and uncapped Inactive Landfill. As discussed more fully below, clues as to the historic use and conditions at the Inactive Landfill have been gained through local knowledge and the few available historic documents.

A review of public records demonstrates that the Inactive Landfill opened in 1946. In February 1986, William M. McNeil, Jr., conveyed the approximately seven-acre parcel known as the McNeil Dump

to Duxbury Landfill, Inc. for \$12,500.00. Five months later, in July 1986, Duxbury Landfill, Inc. conveyed the Inactive Landfill to the waste management company, Browning-Ferris Industries, Inc. (“BFI”)¹, for \$200,000.00. On January 22, 1997, the Town took the Inactive Landfill by tax title foreclosure when the Land Court issued a Final Judgment in Tax Lien in Case No. 109091 T.L., Town of Duxbury v. Duxbury Landfill, Inc.

The Inactive Landfill began accepting waste most likely in the 1940s and was issued a site assignment by the Duxbury Board of Health on October 7, 1971. The Inactive Landfill stopped accepting waste in 1979 and is indicated to have been inactive since that time. Duxbury Landfill, Inc. conducted a feasibility study in 1986 to determine if operations could resume. At that time, the determination was made that resumption of operations was infeasible due to the proximity to the Evergreen Wells and the location of the property within a Zone II of a municipal drinking water well field, as well as the site being located over a sole source aquifer.

In June of 1993, the MassDEP issued a Notice of Noncompliance to Duxbury Landfill, Inc. and ordered that closure activities including capping of the Inactive Landfill must commence. A landfill closure/post-closure plan was created by Consulting Engineers & Scientists, Inc. of Lakeville in June of 1994 (the “1994 Consulting Report”). This is the last known document in the MassDEP file for this site, and recent conversations with the Southeast Region (SERO) MassDEP Solid Waste Division indicate that closure activities were never initiated. Furthermore, there are no indications that lining, capping, or monitoring of the site have occurred in the intervening 25 years.

While the 1994 Consulting Report indicates that the Inactive Landfill was used exclusively for the disposal of construction and demolition debris and stumps, it is listed as a municipal solid waste (“MSW”) landfill on the MassDEP List, and local information tends to indicate a wide range of industrial and municipal products. Test pits dug as part of the 1994 Consulting Report indicate the presence of concrete, sheet metal, pipes, foam insulation, lumber, bricks, cobbles, utility poles, stumps and other demolition debris to a depth of 20 feet. It is important to note that for many years, construction and demolition debris included the disposal of asbestos-containing materials and PCB and lead-laden paints. The report indicates an approximate landfill footprint of 4.3 acres, with a strong possibility that debris extends beyond the Inactive Landfill property line by approximately 0.45 acres to the southwest—the direction most proximate to the Evergreen Wells. The 1994 Consulting Report also makes clear that, because waste was received by the Inactive Landfill prior to the implementation of solid waste regulations in the state, the Inactive Landfill has no liner system, leachate collection system, stormwater controls, or capping system.

¹ BFI was a North American waste management company that was disbanded in 1999. Its name is a licensed trademark of Allied Waste Industries.

Additional information collected from Town records indicate numerous fires (at least 533, according to the records the Committee has collected) at the Inactive Landfill from 1951 through its closure in 1979. Most notably, 86 incidents of firefighting activity took place at the Inactive Landfill in 1953, which followed 59 the year prior. Conversations with former Duxbury Fire Chiefs indicate the use of fire retardant foam (also known as “wet water”) to combat these fires. It is our understanding that “wet water” was a mixture of a concentrated surfactant and water in the pumper tank, and that this combination was widely used in order to more effectively fight landfill fires. In many instances across the country during the period in question, firefighting additives included prominently used and widely available hydrocarbon and fluorocarbon surfactants, which were used to enhance the spreading of the water along air-water interfaces. Where these foams have been deployed, high concentrations of per- and polyfluoroalkyl substances (“PFAS”) have been detected in groundwater, biota, and surface water.

PFAS are a large family of chemicals used starting in the 1940s in firefighting foams, Teflon, Gore-Tex, Scotchgard, carpet, metal plating, food packaging, insecticides, nonstick cookware, fast food containers, personal care products, and other industrial and consumer applications. Many of these products are disposed of in landfills at the end of their useful life, and the presence of PFAS in landfill leachate is well documented. There is now ample evidence that exposure to PFAS, even in minute concentrations, can lead to adverse health outcomes in humans. Certain PFAS can accumulate and stay in the human body for long periods of time. Studies indicate that certain types of PFAS can cause reproductive and developmental, liver and kidney, and immunological effects. Some PFAS have caused tumors in animals, and several epidemiological studies indicate probable links in humans with certain types of cancer. Therefore, our concern regarding the Inactive Landfill is two-fold in this regard: 1) the almost certain presence of PFAS in free-flowing leachate from the landfill waste; and 2) the potential application of PFAS-containing firefighting surfactants in hundreds of instances over a period of many years. In particular, the vicinity of the Inactive Landfill to domestic private wells and municipal drinking water wells is worrisome.

There are 12 groundwater monitoring wells on the property of the Inactive Landfill that have been sampled in the past. The last known sampling date was 1992, when results indicated detectable levels of arsenic, barium, cadmium, chromium (total), hexavalent chromium (chromium vi), iron, lead, manganese, and zinc. At that time, sampling was completed for nitrate (as N), chloride, alkalinity, and additionally metals. To our knowledge the groundwater at the site has never been tested for volatile organic compounds (VOCs) or any of the other required compounds routine to landfill monitoring as part of 310 CMR 19.000, the Massachusetts Solid Waste Management Regulations. It is unclear whether the groundwater wells on-site are still operable.

The Inactive Landfill is one of 196 similar, inactive, unlined, uncapped, municipal solid waste landfills in the state of Massachusetts, as listed in the February 2018 MassDEP list of Inactive & Closed Landfills & Dumping Grounds. In 2001 the MassDEP published Revised Guidelines for Determining

Closure Activities at Inactive Unlined Landfill Sites. See Exhibit 3. This document indicates that “[t]hese sites have the potential to cause adverse impacts to public health, safety, and the environment by generating leachate and landfill gas.” It is known that unlined, uncapped landfills can release heavy metals, volatile organic compounds (including 1,4-dioxane), and other deleterious chemicals to nearby groundwater via leachate. In fact, 1,4-dioxane has been detected twice in annual sampling of groundwater wells at the adjacent Duxbury Municipal Landfill. This release of chemicals into the groundwater not only represents a threat to public health, in particular to those living adjacent to such sites, but also is a threat to populations using groundwater that is impacted by the release of leachate from these landfills.

On April 4, 2021, a member of the Committee took a site visit of the Inactive Landfill from publicly- accessible paths off of Heritage Lane. The site is heavily vegetated, and there is a significant amount of refuse, including but not limited to rusted drums, trailers, and a vehicle, poking through the surface of the ground in the fringes of the Inactive Landfill. Photographs taken during the April 4th site visit are attached at **Exhibit 4-a** through **4-d**.

Additionally, the Committee has been in contact with researchers at the Harvard University School of Engineering and Applied Sciences (the “Harvard Team”), who will be publishing a study² in *Environmental Science and Technology* regarding a new testing method they developed to “fully capture and characterize all PFAS [(per- and polyfluoroalkyl substances)] from fire-retardant foams, which are a major source of PFAS . . . and large amounts of unidentified PFAS that couldn’t have originated from these foams.” *Id.* Using their new testing method, the Harvard Team found large quantities of previously undetectable³ PFAS compounds in six watersheds on Cape Cod. The Harvard Team has graciously offered to help the Committee and the Town of Duxbury in testing for PFAS and other potential contaminants which may be leaching from the Inactive Landfill.

3. NEW DRINKING WATER REGULATIONS IN MA: 310 CMR 22.0, et seq.

An article⁴ published by the MassDEP on September 24, 2020 indicates that on that date, the Baker-Polito Administration finalized regulations that establish enforceable standards for public drinking

² See <https://news.harvard.edu/gazette/story/2021/03/new-tool-finds-pfas-compounds-on-cape-cod/>

³ Current tests can only identify about 50% of PFAS from historically-used fire retardant foams — products that were discontinued in 2001 due to high levels of PFOS and PFOA — and less than 1% percent of PFAS from modern foams. *Id.*

⁴ See <https://www.mass.gov/news/baker-polito-administration-establishes-strict-standards-for-pfas-in-drinking-water-to-protect>

water systems impacted by PFAS and require regular testing for the contaminants. *See* 310 CMR 22.00, *et seq.* There are currently no federal PFAS standards for drinking water. According to the article:

The new drinking water standard for PFAS establishes a limit of 20 parts per trillion (ppt) for the sum of six PFAS compounds, called "PFAS6." The rule requires public water suppliers to test for PFAS6 and act when there is a detection above the limit. In using the sum of six PFAS compounds, these standards provide a higher degree of protection, particularly for sensitive subgroups including pregnant women, nursing mothers and infants. There are currently no federal PFAS standards for drinking water.

We are fortunate at this time that our state government acknowledges the dangers associated with PFAS contaminants leaching into municipal water systems and to have access to such testing methods as those utilized by the Harvard team to ensure the safety of our municipal water supply.

4. RECENT ACTION REGARDING THE INACTIVE LANDFILL

It is the Committee's understanding based on a report in the *Duxbury Clipper*, dated January 29, 2020, that, in January 2020, Town officials had contacted a consultant to help them learn more about the McNeil Dump; and Town Manager Rene Read met with Department of Public Works Director Peter Buttkus, Director of Inspectional Services Scott Lambiase, and Ms. Mayo in late January 2020 to discuss the Committee's concerns about the Inactive Landfill. According to the article, Mr. Buttkus was to have contacted the Town's engineer, Weston and Sampson, to determine: 1) the cost of monitoring groundwater near the Inactive Landfill; and 2) the direction of groundwater flow from the site. Further, Mr. Read requested Weston and Sampson to "review the parameters and associated costs" of closing and capping the Inactive Landfill, in accord with the MassDEP's order in 1993.

5. CURRENT ACTION ITEMS

In conclusion, at the upcoming April 29th meeting with the Board, the Committee would like to determine what the status is regarding the Town's efforts to: 1) monitor the groundwater near the Inactive Landfill; 2) determine the direction of groundwater flow from the site; 3) close and cap the Inactive Landfill, in accord with the MassDEP Order from 1993 and pursuant to 310 CMR 19.140; and 4) test the private domestic wells of those Duxbury residents on Mayflower Street and Heritage Lane who are in close proximity to the Inactive Landfill. As a follow-up to the Committee's previous meeting with the Board, the Committee also requests to be apprised of the Town's progress in: 1) obtaining an opinion from Town Counsel as to whether the Town could seek compensation from prior owners/users of the Inactive Landfill (i.e., BFI, 3M, etc.) who caused the contamination of the site; and 2) scheduling quarterly testing

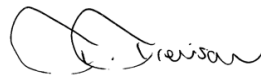
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via the monitoring wells at both the current, active Town transfer station/Municipal Landfill and the Inactive Landfill.

As noted briefly above, the Committee is excited to have the assistance of the Harvard Team to assist the Committee and the Town of Duxbury in testing for PFAS and other potential contaminants which may be leaching from the Inactive Landfill. To further this effort, the Harvard Team has requested direct samples of water from the Town's wells (i.e. samples of the water from the wells prior to being treated by the Town for Fluoride, chlorine, etc., as these additives and treatments can mask and/or significantly alter the water test results). Accordingly, we ask for the Town's cooperation in providing to the Harvard Team direct samples of water from the Town's wells for testing.

On behalf of the Duxbury Safe Water Committee and the affected residents of Duxbury, we thank you for your time and prompt attention to this matter and look forward to meeting with you on April 29th. Should you have any questions in the interim, please do not hesitate to contact me directly.

Respectfully,



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Encls.

cc: Duxbury Safe Water Committee, Inc. (via email)
Duxbury Town Manager Rene Read (via email)
Duxbury Water Department Superintendent Peter Mackin (via email)
Duxbury Public Works Department Director Peter Butkus (via email)
Duxbury Building Commissioner/Director of Municipal Services James Wasielewski (via email)