Public Employees for Environmental Responsibility
New England Field Office
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October 8, 2019

Denise Child, Chief
Wetlands Branch
Massachusetts Department of Environmental Protection
Central Regional Office
8 New Bond Street
Worcester, MA 01606

Sent via email to Denise.Child@mass.gov
copied to jdelmore@franklinma.gov, margaret.finn@state.ma.us

Dear Ms. Child,

Public Employees for Environmental Responsibility (PEER) is writing to make you aware of a potential violation of the Wetlands Protection Act, MGL Ch. 131 Section 40, at Chilson Park, Beaver Street, in Franklin, Massachusetts (see Figure 1 for National Wetlands Inventory screenshot of the area). The potential violation is to the east of the existing turf field adjacent to the wetland labeled "PABH." It appears that this area is within a DEP Approved Zone II Water Resource District.[1]

Figure 1

Specifically, there were approximately 11 rolls of discarded artificial turf (see Photograph 1),[2] and four bags of rubber crumb infill (see Photograph 2),[3] within 34' to 45' of a wetland and stream system. These materials were dumped in this area in or around 2017, and the rubber crumb and grass shreds are making their way into the wetland (see Photograph 3).

[1] https://www.franklinma.gov/sites/franklinma/files/uploads/water_resource_districts_website_version_3.pdf
[2] Each roll is roughly 7' 6' long, and 3'4" in diameter.
[3] The crumb rubber bags are approximately 5' tall and 3'4"wide.

Photograph 1

Photograph 2

Photograph 3

In one location, a large quantity of crumb rubber was spilling down a hill into the wetlands, beyond the blue wetland flag (see Photograph 4).

Photograph 4

The Town of Franklin did have an Order of Conditions to install the new turf field in 2004 (SE159-848). The permit does not appear to contain language allowing the disposal and/or storage of the old turf or the crumb rubber within the 100' buffer of the wetlands/stream system. Condition number 55 states:

55. Drainage outfalls will be monitored yearly for a period of 5 years after project completion to document whether the desired pollutant TSS removal/attenuation is being achieved. All samples must be analyzed by a certified Massachusetts analytical laboratory. This monitoring may be extended if there is any pollution found during any of the testing. Testing shall be conducted during or after a rainfall event of not less than ½ inch at least once per year. Testing shall be both upgradient and downgradient of detention basins. The Applicant must develop a Post-Construction Water Quality Monitoring Plan to be reviewed and approved by the Conservation Commission prior to the completion of construction. Monitoring will be conducted for the following pollutants: Samples will be analyzed for the following: total suspended solids, pH, sodium, chloride, turbidity, total phosphorus, Total kjeldahl nitrogen, Volatile Organic Compounds, Polynuclear Aromatic Hydrocarbons, and TPH (VPH/EPH method). The test results will be provided to the Franklin Conservation Commission within four weeks of the sampling date. Test results will be provided with detection limits used for each constituent and an analysis of the results in letter report form.

To date, the Town of Franklin has been unable to find the results of the required testing. Moreover, we are not certain that a certificate of compliance has been issued for this project.

The artificial turf field was replaced in 2017. PEER was unable to find an Order of Conditions for this more recent work, most likely because the replacement field was in the same footprint as the original 2004 permit. However, it does not appear that the 2004 permit allowed for a disposal/storage area for rubber crumb or future used artificial turf in the buffer zone of the wetlands. It is also unlikely that a separate permit was issued for this storage/disposal, and such a permit was not on DEP's online system, nor in the files at Franklin Town Hall.

The wetlands are Areas Subject to Protection under M.G.L. c. 131, § 40 (see 310 CMR Section 10.02); the discarded materials are an alteration of the wetland by virtue of the fact that they appear to be changing the characteristics of the receiving water (see 310 CMR 10.04; see below for more specifics); and the discarded materials were within the buffer zone of the wetlands because they are in an area of land extending 100 feet horizontally outward from the boundary of a resource area subject to protection; and there was no Order of Conditions issued for this work.

With regard to the changing characteristics of the receiving water, it is likely that the chemicals in the turf and the crumb rubber are leaching into the wetlands and waters of Franklin. Specifically, PEER recently found Per-

and polyfluoroalkyl substances (PFAS) in the artificial turf backing in another Massachusetts municipality, so we tested both the backing of the discarded rolls in Franklin, and the water in the wetlands. PEER found Perfluorooctanesulfonic acid (PFOS) in the backing of the turf discarded near the wetlands in Franklin (see Figure 2). PFOS has been voluntarily withdrawn from the market, but was still in use in 2004 when this turf was manufactured.

Figure 2

Submittal Date/Time: 07/30/2019 09:50
Collection Date/Time: 07/29/2019 10:40

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/g**	**ng/g**	**ng/g**	
14027	10:2Fluorotelomersulfonic acid¹	120226-60-0	N.D.	0.29	0.98	1
14027	4:2-Fluorotelomersulfonic acid¹	757124-72-4	N.D.	0.29	0.98	1
14027	6:2-Fluorotelomersulfonic acid¹	27619-97-2	N.D.	0.29	0.98	1
14027	8:2-Fluorotelomersulfonic acid¹	39108-34-4	N.D.	0.29	1.5	1
14027	NEtFOSAA¹	2991-50-6	N.D.	0.098	0.98	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14027	NMeFOSAA¹	2355-31-9	N.D.	0.098	0.98	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14027	Perfluorobutanesulfonic acid¹	375-73-5	N.D.	0.20	0.98	1
14027	Perfluorobutanoic acid¹	375-22-4	N.D.	0.39	0.98	1
14027	Perfluorodecanesulfonic acid¹	335-77-3	N.D.	0.098	0.29	1
14027	Perfluorodecanoic acid¹	335-76-2	N.D.	0.098	0.29	1
14027	Perfluorododecanesulfonic acid¹	79780-39-5	N.D.	0.098	0.98	1
14027	Perfluorododecanoic acid¹	307-55-1	N.D.	0.098	0.29	1
14027	Perfluoroheptanesulfonic acid¹	375-92-8	N.D.	0.098	0.29	1
14027	Perfluoroheptanoic acid¹	375-85-9	N.D.	0.098	0.29	1
14027	Perfluorohexadecanoic acid¹	67905-19-5	N.D.	0.098	0.29	1
14027	Perfluorohexanesulfonic acid¹	355-46-4	N.D.	0.098	0.29	1
14027	Perfluorohexanoic acid¹	307-24-4	N.D.	0.098	0.29	1
14027	Perfluorononanesulfonic acid¹	68259-12-1	N.D.	0.098	0.29	1
14027	Perfluorononanoic acid¹	375-95-1	N.D.	0.098	0.29	1
14027	Perfluorooctadecanoic acid¹	16517-11-6	N.D.	0.098	0.29	1
14027	Perfluorooctanesulfonamide¹	754-91-6	N.D.	0.098	0.29	1
14027	Perfluorooctanesulfonic acid¹	1763-23-1	0.19 J	0.098	0.29	1
14027	Perfluorooctanoic acid¹	335-67-1	N.D.	0.098	0.29	1
14027	Perfluoropentanesulfonate¹	2706-91-4	N.D.	0.098	0.29	1
14027	Perfluoropentanoic acid¹	2706-90-3	N.D.	0.098	0.29	1
14027	Perfluorotetradecanoic acid¹	376-06-7	N.D.	0.098	0.29	1
14027	Perfluorotridecanoic acid¹	72629-94-8	N.D.	0.098	0.29	1
14027	Perfluoroundecanoic acid¹	2058-94-8	N.D.	0.098	0.29	1
	The stated QC limits for this matrix should be considered advisory.					

We also found a number of different PFAS substances in the wetlands, including PFOS (see Figure 3).

Figure 3

Collection Date/Time: 07/29/2019

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous	**EPA 537 Version 1.1 Modified**		**ng/l**	**ng/l**	**ng/l**	
14473	10:2Fluorotelomersulfonic acid¹	120226-60-0	N.D.	9.7	49	1
14473	4:2-Fluorotelomersulfonic acid¹	757124-72-4	N.D.	4.9	19	1
14473	6:2-Fluorotelomersulfonic acid¹	27619-97-2	22 J	19	49	1
14473	8:2-Fluorotelomersulfonic acid¹	39108-34-4	N.D.	9.7	29	1
14473	NEtFOSAA¹	2991-50-6	N.D.	4.9	29	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA¹	2355-31-9	N.D.	5.8	19	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic acid¹	375-73-5	N.D.	4.9	19	1
14473	Perfluorobutanoic acid¹	375-22-4	N.D.	19	49	1
14473	Perfluorodecanesulfonic acid¹	335-77-3	N.D.	4.9	19	1
14473	Perfluorodecanoic acid¹	335-76-2	N.D.	4.9	19	1
14473	Perfluorododecanesulfonic acid¹	79780-39-5	N.D.	4.9	29	1
14473	Perfluorododecanoic acid¹	307-55-1	N.D.	4.9	19	1
14473	Perfluoroheptanesulfonic acid¹	375-92-8	N.D.	4.9	19	1
14473	Perfluoroheptanoic acid¹	375-85-9	N.D.	4.9	19	1
14473	Perfluorohexadecanoic acid¹	67905-19-5	N.D.	9.7	29	1
14473	Perfluorohexanesulfonic acid¹	355-46-4	18 J	4.9	19	1
14473	Perfluorohexanoic acid¹	307-24-4	N.D.	4.9	19	1
14473	Perfluorononanesulfonic acid¹	68259-12-1	N.D.	4.9	19	1
14473	Perfluorononanoic acid¹	375-95-1	N.D.	4.9	19	1
14473	Perfluorooctadecanoic acid¹	16517-11-6	N.D.	9.7	29	1
14473	Perfluorooctanesulfonamide¹	754-91-6	N.D.	4.9	19	1
14473	Perfluorooctanesulfonic acid¹	1763-23-1	9.6 J	4.9	19	1
14473	Perfluorooctanoic acid¹	335-67-1	7.0 J	4.9	19	1
14473	Perfluoropentanesulfonate¹	2706-91-4	N.D.	4.9	19	1
14473	Perfluoropentanoic acid¹	2706-90-3	N.D.	4.9	19	1
14473	Perfluorotetradecanoic acid¹	376-06-7	N.D.	4.9	19	1
14473	Perfluorotridecanoic acid¹	72629-94-8	N.D.	4.9	19	1
14473	Perfluoroundecanoic acid¹	2058-94-8	N.D.	4.9	19	1
	The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.					
Metals	**SW-846 6010C**		**mg/l**	**mg/l**	**mg/l**	
07051	Chromium¹	7440-47-3	0.430	0.0053	0.0150	1
07055	Lead¹	7439-92-1	1.36	0.0071	0.0150	1
07072	Zinc¹	7440-66-6	1.07	0.0030	0.0200	1

While this is not determinative, it is possible that the PFOS is coming off the rolls of turf and leaching into the wetlands. Please note that the specific PFAS we found in new turf in another Massachusetts municipality was 6:2 FTSA, which we also found in Franklin's wetlands. It is therefore possible that 6:2 FTSA or another PFAS is leaching off the new turf fields into the wetlands and waters.

As you are likely aware, PFAS are often referred to as "forever chemicals" because they do not break down in the environment and bioaccumulate in the food chain. PFAS have been heavily manufactured and are used in many industries because of their unique physical and chemical properties. They are used in fire retardants, repellents, furniture, take out containers and non-stick cookware, and we now know that they are also found in artificial turf. Human exposure to PFAS are associated with cancer, birth defects, developmental damage to infants, and impaired functioning of the liver, kidneys, and immune system. As many as 100 million American could be drinking water contaminated with PFAS.[4] PFAS has been found in grocery store meats, milk, seafood and off-the-shelf chocolate cakes, and in wildlife and game, such as deer and fish. Massachusetts is poised to set a drinking water and groundwater limit of 20 ppt for six of these PFAS chemicals. A recent article in The Intercept exposed how dangerous the new generation of PFAS chemicals are,[5] and yet the vast majority are not regulated by the state or federal government.

On September 30, 2019, after a reporter questioned Town employees about the rolls of turf and bags of crumb rubber in the buffer zone, the turf and the bags were relocated, presumably by Town employees. Ruts from the vehicles and depressions in the soil show where the rolls used to be are visible (see Photograph 5). Moreover, it appears that some type of shovel or heavy equipment removed the loose piles of crumb rubber (see Photograph 6).

Photograph 5

[4] https://www.ewg.org/testimony-official-correspondence/ewg-pfas-testimony-record-house-committee-oversight-and-reform
[5] https://theintercept.com/2019/09/19/epa-new-pfas-chemicals/

Photograph 6

PEER believes the Town moved the piles when they learned of this forthcoming complaint from the reporter. It is clear that the Town of Franklin was trying to correct the potential violation, but in doing so they may have inadvertently created additional violations of the Wetlands Protection Act. Moreover, removal of the turf and the crumb rubber may not obviate the need for additional remediation. If crumb rubber, PFOS, and/or other contaminants leaked into the wetlands and stream during the two years the piles and bags were there, Franklin's drinking water supply may be impacted.

In fairness to the Town of Franklin, no one outside of the turf manufacturers knew, until last week, that artificial turf contained PFAS. However, the chemicals in the crumb rubber were well known, and have been for years. PEER respectfully requests that Massachusetts Department of Environmental Protection investigate this matter. Pursuant to 310 CMR Section 10.08, when the Department determines that an activity is in violation of M.G.L. c. 131, § 40 and 310 CMR 10.00, the Department may issue an enforcement order for failing to obtain a valid Order of Conditions prior to conducting an Activity Subject to Regulation. Moreover, PEER requests that you look into the failure to comply with Condition Number 55 (water quality monitoring). Finally, PEER urges you to test the existing turf field for PFAS, and determine whether PFAS is leaching into Franklin's wetlands.

Thank you for your attention to this matter.

Sincerely,

Kyla Bennett, PhD, JD
Director, New England PEER

cc: Town of Franklin Conservation Commission