Artificial Turf Field - Elevated Levels of PFAS Found

Chandra Prasad <chandraprasadbooks@gmail.com>

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To: Oak Bluffs Planning Board <planningboard@oakbluffsma.gov>; ewellhopkins@icloud.com <ewellhopkins@icloud.com>; vinhomes@gmail.com <vinhomes@gmail.com>; Meegan Lancaster <mlancaster@oakbluffsma.gov>; Conservation Agent <conservation@oakbluffsma.gov>

4 attachments (1 MB)

heavy metals AFTER artificial turf field.png; heavy metals BEFORE artificial turf field.png; PFAS AFTER artificial turf field.png; PFAS BEFORE artificial turf field.png;

Dear Oak Bluffs Board of Health, Planning Board, and Conservation Commission,

My name is Chandra Prasad and I write to you from the town of Woodbridge, Connecticut. For years my community debated whether or not to allow an artificial turf field to be installed at our local high school, Amity Regional #5. Residents of Woodbridge rejected an artificial turf field proposal three times, but a change in wording at the most recent referendum (wherein the normal label of "artificial turf" was substituted with the nebulous language “all-season field") confused voters and enabled proponents of the artificial turf field to garner enough votes to pass it. Citizens were promised that the field would be PFAS-free, but testing has proven otherwise.

Many of us were concerned about impacts to our water supply (most residents use well water; we share a common aquifer). Action was taken to document baseline levels of PFAS and heavy metals just before the field was installed and then again immediately after, following a rainstorm. I am sharing our experience and data with you in the hopes that Martha’s Vineyard makes a more informed choice. I understand that an infill other than tire crumb is being proposed for Martha’s Vineyard, but as PFAS is understood by researchers to be found in the plastic carpet and backing (rather than the infill), our experience is relatable to your situation.

In Woodbridge, surface water testing by a reputable, independent 3rd party, EPA-accredited environmental laboratory, York Lab in Stratford, indicates that several new types of PFAS have been found in surface water adjacent to the newly constructed artificial turf field at Amity High School. The increase in PFAS levels is a violation of the guarantee in the contract requested by the Woodbridge town TPZ, and made between Amity Regional School District and FieldTurf, the artificial turf company that Amity contracted with. FieldTurf signed a pledge that there are NO PFAS IN ITS PRODUCTS.

Baseline testing was performed on surface water in late April 2021 to indicate preliminary levels of both PFAS and heavy metals BEFORE artificial turf field construction, when FieldTurf’s artificial turf materials were not present. The surface water testing was performed on a swale beside the field. Official results with details are attached. Baseline testing found the following:

Perfluorooctanoic acid (PFOA) 4.60 ng/L

Perfluorooctanesulfonic acid (PFOS) 5.52 ng/L

Construction of the artificial turf field with tire rubber infill was completed in July 2021. After the first rainfall upon completion of the artificial turf field, a second round of testing for PFAS and heavy metals was performed on surface water in the exact same swale location. Official results with details are attached. Post-artificial-turf-field-construction testing found the following new PFAS chemicals and heightened levels of the previous PFAS chemicals:

Perfluorooctanoic acid (PFOA) 7.57 ng/L 1.19
Perfluorooctanesulfonic acid (PFOS) 6.44 ng/L 1.19
Perfluorobutanesulfonic acid (PFBS) 1.39 ng/L 1.19
Perfluorohexanoic acid (PFHxA) 3.33 ng/L 1.19
Perfluoroheptanoic acid (PFHpA) 2.04 ng/L 1.19
Selenium 1.18 ug/L

Dr. Graham Peaslee, professor at Notre Dame and the foremost PFAS researcher in the country (his lab did the testing of PFAS levels in firefighting foam and gear that showed an increased incidence of testicular and kidney cancer and that led to legislative change https://www.mlive.com/public-interest/2021/05/michigan-testing-blood-of-firefighters-to-analyze-pfas-exposure.html), has examined the Amity test results and found them concerning. He said, "[These] are non zero values and they increase after a rain event - neither of which is good. With rain, there should be more volume of water (dilution) and lower PFAS concentrations… The appearance of more short-chain PFAS after the rain would be one indication of what I would expect from a turf grass [These results are] not good for the environment nor people that drink the water, or the products irrigated with the water." He also found them consistent with other artificial turf components he has tested.

The citizens of Woodbridge and the parents of Amity HS students are now asking what steps will be taken to assure that this breach of contract is addressed through environmental remediation and mitigation so that the students at Amity High School, the residents of Woodbridge, and the aquatic life in the vicinity of Amity High School are not exposed to increased levels of PFAS. Obviously our options are limited now that the field has been installed, but I hope that Martha's Vineyard and other communities can learn from our experience without subjecting their water to the same dangerous experiment.

Regards,

Chandra Prasad

MORE ON PFAS

PFAS chemicals are manmade chemicals that do not break down and that accumulate in soil, water and bioaccumulate in humans and other organisms, including aquatic life. Humans and wildlife are exposed to PFAS through numerous pathways, including ingestion, dermal contact and inhalation as a result of exposures to a variety of substances containing PFAS, so it's important to note that surface water is only one pathway. (Children inhaling PFAS particles or touching PFAS on an artificial turf field may unintentionally have far greater exposure). Well established adverse health effects of PFAS in humans include immunological, developmental, reproductive, hepatic, hormonal and carcinogenic effects. On November 4, 2019, Connecticut Governor Ned Lamont officially released the PFAS Action Plan prepared by the CT Interagency PFAS Task Force to reduce and eliminate PFAS products and exposure in Connecticut. Similar legislative change is rapidly occurring at the federal level. CT still has a rather high PFAS threshold, which Lamont pledges will change in the next 24 months. In comparison, the amount of PFOA now found in the swale exceeds the limit in the state of CA, for example.

CHANDRA PRASAD

Resident of Woodbridge, Connecticut

Books: www.chandraprasad.com

Email: chandraprasadbooks@gmail.com

Twitter: @chandrabooks

Instagram: @chandraprasadbooks

TikTok: @chandraprasadbooks

PFAS - BEFORE

Sample Information

Client Sample ID: Run-Off swale by Anity Field **York Sample ID:** 21E0077-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
21E0077	PFAS CHECK AMITY FIELD 1	Drinking Water	April 29, 2021 3:00 pm	04/30/2021

PFAS, EPA 537.1 List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 537.1 SPE DVB

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
375-73-5	Perfluorobutanesulfonic acid (PFBS)	ND		ng/L	2.78	1	EPA 537.1 Certifications:	05/05/2021 16:06	05/07/2021 12:49	WL
307-24-4	Perfluorohexanoic acid (PFHxA)	ND		ng/L	2.78	1	EPA 537.1 Certifications:	05/05/2021 16:06	05/07/2021 12:49	WL
375-85-9	Perfluoroheptanoic acid (PFHpA)	ND		ng/L	2.78	1	EPA 537.1 Certifications:	05/05/2021 16:06	05/07/2021 12:49	WL
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	ND		ng/L	2.78	1	EPA 537.1 Certifications:	05/05/2021 16:06	05/07/2021 12:49	WL
335-67-1	**Perfluorooctanoic acid (PFOA)**	**4.60**		ng/L	2.78	1	EPA 537.1 Certifications: NELAC-NY12058	05/05/2021 16:06	05/07/2021 12:49	WL
1763-23-1	**Perfluorooctanesulfonic acid (PFOS)**	**5.52**		ng/L	2.78	1	EPA 537.1 Certifications: NELAC-NY12058	05/05/2021 16:06	05/07/2021 12:49	WL
375-95-1	Perfluorononanoic acid (PFNA)	ND		ng/L	2.78	1	EPA 537.1 Certifications:	05/05/2021 16:06	05/07/2021 12:49	WL
335-76-2	Perfluorodecanoic acid (PFDA)	ND		ng/L	2.78	1	EPA 537.1 Certifications:	05/05/2021 16:06	05/07/2021 12:49	WL
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		ng/L	2.78	1	EPA 537.1 Certifications:	05/05/2021 16:06	05/07/2021 12:49	WL
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		ng/L	2.78	1	EPA 537.1 Certifications:	05/05/2021 16:06	05/07/2021 12:49	WL
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND		ng/L	2.78	1	EPA 537.1 Certifications:	05/05/2021 16:06	05/07/2021 12:49	WL
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND		ng/L	2.78	1	EPA 537.1 Certifications:	05/05/2021 16:06	05/07/2021 12:49	WL
2355-31-9	N-MeFOSAA	ND		ng/L	2.78	1	EPA 537.1 Certifications:	05/05/2021 16:06	05/07/2021 12:49	WL
2991-50-6	N-EtFOSAA	ND		ng/L	2.78	1	EPA 537.1 Certifications:	05/05/2021 16:06	05/07/2021 12:49	WL
756426-58-1	9CL-PF3ONS	ND		ng/L	2.78	1	EPA 537.1 Certifications:	05/05/2021 16:06	05/07/2021 12:49	WL
763051-92-9	11CL-PF3OUdS	ND		ng/L	2.78	1	EPA 537.1 Certifications:	05/05/2021 16:06	05/07/2021 12:49	WL

PFAS - AFTER

Open with

Sample Information

Client Sample ID: Run-off Swale by Amity Field **York Sample ID:** 21G1101-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
21G1101	July 22, 2021 Swale GW Amity HS 06525/Turf Install	Drinking Water	July 22, 2021 8:00 pm	07/23/2021

PFAS, EPA 537.1 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 537.1 SPE DVB

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
375-73-5	**Perfluorobutanesulfonic acid (PFBS)**	**1.39**		ng/L	1.19	1	EPA 537.1 Certifications:	07/28/2021 16:21	07/29/2021 21:56	ZZZ
307-24-4	**Perfluorohexanoic acid (PFHxA)**	**3.33**		ng/L	1.19	1	EPA 537.1 Certifications:	07/28/2021 16:21	07/29/2021 21:56	ZZZ
375-85-9	**Perfluoroheptanoic acid (PFHpA)**	**2.04**		ng/L	1.19	1	EPA 537.1 Certifications:	07/28/2021 16:21	07/29/2021 21:56	ZZZ
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	ND		ng/L	1.19	1	EPA 537.1 Certifications:	07/28/2021 16:21	07/29/2021 21:56	ZZZ
335-67-1	**Perfluorooctanoic acid (PFOA)**	**7.57**		ng/L	1.19	1	EPA 537.1 Certifications: NELAC-NY12058	07/28/2021 16:21	07/29/2021 21:56	ZZZ
1763-23-1	**Perfluorooctanesulfonic acid (PFOS)**	**6.44**		ng/L	1.19	1	EPA 537.1 Certifications: NELAC-NY12058	07/28/2021 16:21	07/29/2021 21:56	ZZZ
375-95-1	Perfluorononanoic acid (PFNA)	ND		ng/L	1.19	1	EPA 537.1 Certifications:	07/28/2021 16:21	07/29/2021 21:56	ZZZ
335-76-2	Perfluorodecanoic acid (PFDA)	ND		ng/L	1.19	1	EPA 537.1 Certifications:	07/28/2021 16:21	07/29/2021 21:56	ZZZ
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		ng/L	1.19	1	EPA 537.1 Certifications:	07/28/2021 16:21	07/29/2021 21:56	ZZZ
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		ng/L	1.19	1	EPA 537.1 Certifications:	07/28/2021 16:21	07/29/2021 21:56	ZZZ
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND		ng/L	1.19	1	EPA 537.1 Certifications:	07/28/2021 16:21	07/29/2021 21:56	ZZZ
376-06-7	Perfluorotetradecanoic acid (PFTA)	ND		ng/L	1.19	1	EPA 537.1 Certifications:	07/28/2021 16:21	07/29/2021 21:56	ZZZ
2355-31-9	N-MeFOSAA	ND		ng/L	1.19	1	EPA 537.1 Certifications:	07/28/2021 16:21	07/29/2021 21:56	ZZZ
2991-50-6	N-EtFOSAA	ND		ng/L	1.19	1	EPA 537.1 Certifications:	07/28/2021 16:21	07/29/2021 21:56	ZZZ
756426-58-1	9CL-PF3ONS	ND		ng/L	1.19	1	EPA 537.1 Certifications:	07/28/2021 16:21	07/29/2021 21:56	ZZZ
763051-92-9	11CL-PF3OUdS	ND		ng/L	1.19	1	EPA 537.1 Certifications:	07/28/2021 16:21	07/29/2021 21:56	ZZZ
13252-13-6	HFPO-DA (Gen-X)	ND		ng/L	1.19	1	EPA 537.1 Certifications:	07/28/2021 16:21	07/29/2021 21:56	ZZZ
919005-14-4	ADONA	ND		ng/L	1.19	1	EPA 537.1 Certifications:	07/28/2021 16:21	07/29/2021 21:56	ZZZ

Heavy Metals BEFORE

Sample Information

Client Sample ID: Run-Off Swale By Amity Field **York Sample ID:** 21E0073-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
21E0073	METALS CHECK AMITY FIELD 1	Water	April 29, 2021 3:00 pm	04/30/2021

Metals, RCRA (no Hg) by 6020

Log-in Notes: Temp_S1 **Sample Notes:**

Sample Prepared by Method: EPA 3015A

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7440-38-2	Arsenic	ND		ug/L	1.11	1	EPA 6020B Certifications: CTDOH,NELAC-NY10854,NJDEP,PADEP	05/05/2021 09:29	05/06/2021 14:22	BML
7440-39-3	**Barium**	**7.02**		ug/L	1.11	1	EPA 6020B Certifications: CTDOH,NELAC-NY10854,NJDEP,PADEP	05/05/2021 09:29	05/06/2021 14:22	BML
7440-43-9	Cadmium	ND		ug/L	0.556	1	EPA 6020B Certifications: CTDOH,NELAC-NY10854,NJDEP,PADEP	05/05/2021 09:29	05/06/2021 14:22	BML
7440-47-3	Chromium	ND		ug/L	1.11	1	EPA 6020B Certifications: CTDOH,NELAC-NY10854,NJDEP,PADEP	05/05/2021 09:29	05/06/2021 14:22	BML
7439-92-1	Lead	ND		ug/L	1.11	1	EPA 6020B Certifications: CTDOH,NELAC-NY10854,NJDEP,PADEP	05/05/2021 09:29	05/06/2021 14:22	BML
7782-49-2	Selenium	ND		ug/L	1.11	1	EPA 6020B Certifications: CTDOH,NELAC-NY10854,NJDEP,PADEP	05/05/2021 09:29	05/06/2021 14:22	BML
7440-22-4	Silver	ND		ug/L	1.11	1	EPA 6020B Certifications: CTDOH,NELAC-NY10854,NJDEP,PADEP	05/05/2021 09:29	05/06/2021 14:22	BML

Mercury by 7470/7471

Log-in Notes: Temp_S1 **Sample Notes:**

Sample Prepared by Method: EPA SW846-7470A

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7439-97-6	Mercury	ND		mg/L	0.0002	1	EPA 7470 Certifications: CTDOH,NELAC-NY10854,NJDEP,PADEP	05/05/2021 16:58	05/05/2021 16:58	AA

Heavy Metals AFTER

Sample Information

Client Sample ID: Run-off Swale by Amity Field **York Sample ID:** 21G1153-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
21G1153	July 22, 2021 Swale GW Amity HS 06525/Turf Install	Water	July 22, 2021 7:00 pm	07/23/2021

Metals, RCRA (no Hg) by 6020 **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3015A

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7440-38-2	Arsenic	ND		ug/L	1.11	1	EPA 6020B	07/27/2021 10:07	07/28/2021 13:20	BML
							Certifications: CTDOH,NELAC-NY10854,NJDEP,PADEP			
7440-39-3	**Barium**	**6.99**		ug/L	1.11	1	EPA 6020B	07/27/2021 10:07	07/28/2021 13:20	BML
							Certifications: CTDOH,NELAC-NY10854,NJDEP,PADEP			
7440-43-9	Cadmium	ND		ug/L	0.556	1	EPA 6020B	07/27/2021 10:07	07/28/2021 13:20	BML
							Certifications: CTDOH,NELAC-NY10854,NJDEP,PADEP			
7440-47-3	Chromium	ND		ug/L	1.11	1	EPA 6020B	07/27/2021 10:07	07/28/2021 13:20	BML
							Certifications: CTDOH,NELAC-NY10854,NJDEP,PADEP			
7439-92-1	Lead	ND		ug/L	1.11	1	EPA 6020B	07/27/2021 10:07	07/28/2021 13:20	BML
							Certifications: CTDOH,NELAC-NY10854,NJDEP,PADEP			
7782-49-2	**Selenium**	**1.18**		ug/L	1.11	1	EPA 6020B	07/27/2021 10:07	07/28/2021 13:20	BML
							Certifications: CTDOH,NELAC-NY10854,NJDEP,PADEP			
7440-22-4	Silver	ND		ug/L	1.11	1	EPA 6020B	07/27/2021 10:07	07/28/2021 13:20	BML
							Certifications: CTDOH,NELAC-NY10854,NJDEP,PADEP			

Mercury by 7470/7471 **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA SW846-7470A

CAS No.	Parameter	Result	Flag	Units	Reported to LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7439-97-6	Mercury	ND		mg/L	0.0002	1	EPA 7470	07/30/2021 13:55	07/30/2021 13:55	AD
							Certifications: CTDOH,NELAC-NY10854,NJDEP,PADEP			