Message

From: Strynar, Mark [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=5A9910D5B38E471497BD875FD329A20A-STRYNAR, MARK]
Sent: 7/6/2017 6:35:02 PM
To: Wissbaum, Brandon [bwissbaum@wect.com]
Subject: RE: WECT/chemicals in the Cape Fear River
Attachments: Sun et al. GenX in the Cape Fear River 2016.pdf; Strynar et al., 2015 ES&T.pdf; Sun et al., 2016 SI.pdf; Nakayama et al., 2007.pdf

Brandon,

See my response below.

Mark

From: Wissbaum, Brandon [mailto:bwissbaum@wect.com]
Sent: Thursday, July 06, 2017 10:28 AM
To: Strynar, Mark <Strynar.Mark@epa.gov>
Subject: RE: WECT/chemicals in the Cape Fear River

Ok, here are some questions covering GenX and the other PFECAs found in the Cape Fear River, along with a couple about PFOA and PFOS. Thanks in advance for the help!

When did you and your team first discover GenX and the six (I believe this is correct?) other PFECAs in the Cape Fear River? We first discovered GenX in 2012 in some work I presented at a national meeting called Society of Environmental Toxicology and Chemistry (SETAC). In some follow-up efforts where we determined the additional chemicals found in the Cape Fear River were presented at a SETAC meeting in 2014. However, our first peer-reviewed publication of this work was in 2015 *"Identification of Novel Perfluoroalkyl Ether Carboxylic Acids (PFECAs) and Sulfonic Acids (PFESAs) in Natural Waters Using Accurate Mass Time-of-Flight Mass Spectrometry (TOFMS)Mark Strynar,*,† Sonia Dagnino,†,‡ Rebecca McMahen,†,‡ Shuang Liang,†,‡ Andrew Lindstrom,†Erik Andersen,† Larry McMillan,§ Michael Thurman,∥ Imma Ferrer,∥ and Carol Ball⊥" ES&T.*

If I remember correctly, in your 2016 paper titled "Legacy and Emerging Perfluoroalkyl Substances Are Important Drinking Water Contaminants in the Cape Fear River Watershed of North Carolina," the mean concentration of GenX in the Cape Fear River was 631 ppt – and that was from 2013-2014 samples. Have there been any more recent samples taken, and if so are the results available? NC DEQ has taken new samples and the samples are being analyzed currently (Test America – contract lab and my lab). They expect those results will be available by the end of the month. Can you provide when the samples were taken? My understanding is this week (July 3-6) is the 3rd week of sampling and each week previous for 2 weeks (June 26-29) and (June 19-22) respectively.

Can you provide the mean and max concentration of the other PFECAs found in the Cape Fear River at the time of the 2016 paper, and if possible any more recent concentration levels? I cannot provide this data, no chemical standards are available for purchase. These are needed to properly quantitate the additional PFECAs in the River. In the Sun et al., 2016 paper we make reference to the relative abundance which is an indication of contribution (see Figure 2).

I understand little is known about the six other PFECAs, and at the time of the 2016 paper they had not been named. Have they been named since that time? In the Strynar et al., 2015 refer to Table 1 for names. In the Sun et al., 2016 work refer to Table S1 in the supporting info document for names.

Do you have any historical information on these six other PFECAs, like GenX being a replacement chemical for PFOA – are these six other PFECAs replacements for PFOA, replacements for another chemical, a byproduct of something else, or something else? I have no information on this.

Is it believed these six other PFECAs are also being discharged from the Fayetteville Works plant? If so, do you know how? I have no information on this. However the compounds do not exist in the water upstream of the Chemours 002 outfall. They appear to be co-occurring contaminants.

Based on your research, what do you find most concerning about these unregulated chemicals in the CFR? No response. Check with the US EPA and/or NC DEQ desk statements on this question.

Can you provide when and at what concentration PFOA and PFOS were detected in the Cape Fear River? The earliest I've seen from your research was 2007, but did you find PFOA and PFOS in the Cape Fear River prior to that? If possible, can you provide the dates and concentrations from your research where PFOA and PFOS were found in samples from the CFR through today? The earliest work we did on the Cape Fear River was in Nakayama et al., 2007. Refer to Table 3 for that data. Sun et al., 2016 has the most recent data we have generated.

However, the UCMR3 data for Fayetteville, NC and Wilmington, NC from 2013-2015 would have PFOS/PFOA and 4 other PFAS reported out. Only water producers serving >10,000 people were included in the UCMR3 study. https://www.epa.gov/dwucmr/third-unregulated-contaminant-monitoring-rule. Sweeny WTP (Wilmington) and Hoffer WTP (Fayetteville) should have provided this to their customers in the past few years in their consumer confidence report.

Adding on to that question – are you aware of any recent confirmation of PFOA and/or PFOS being found in drinking water in the lower cape fear area? See the above answer.

Is there a formula to determine the dilution of a chemical from effluent flow to river water? The reason I ask – I'm looking at recent data from Chemours discharge monitoring report on the EPA's website of PFOA levels in effluent flow, but want to determine how diluted it is when it enters the CFR. I would ask Detlef Knappe at NC State this question. He is better suited to answer.

Are there any topics that haven't been covered in the recent media reports that you think should be reported/explained? No, I think the media has done a very thorough job covering this topic. All I have read thus far has been very clear, concise and on point. Kudos.

Anything else you'd like to add? If there are other technical details you need clarified please do not hesitate to email or call. This is a very complex set of issues that I have been working on for over a decade. It is second nature to me but may not be for the majority. No question is too easy or too complex. I am here to help clarify if need be.

Brandon

From: Strynar, Mark [mailto:Strynar.Mark@epa.gov]
Sent: Thursday, July 06, 2017 7:23 AM
To: Wissbaum, Brandon <bwissbaum@wect.com>
Subject: RE: WECT/chemicals in the Cape Fear River

No problem. I have been busy as well with this issue. Basic questions are fine and I am glad to help out.

Mark

From: Wissbaum, Brandon [mailto:bwissbaum@wect.com]
Sent: Wednesday, July 05, 2017 4:38 PM

To: Strynar, Mark <Strynar.Mark@epa.gov>
Subject: RE: WECT/chemicals in the Cape Fear River

Hi Mark,

Sorry for the delayed response, it's been a busy day. Thanks for following up, let me get my act together on questions and I will send them to you. Just let me know which ones you are unable to answer. Apologies if some of the questions are basic, I definitely want to be sure I have a clear understanding of everything.

Brandon

From: Strynar, Mark [mailto:Strynar.Mark@epa.gov]
Sent: Wednesday, July 05, 2017 8:26 AM
To: Wissbaum, Brandon <bwissbaum@wect.com>
Cc: McAdams, Ann <amcadams@wect.com>
Subject: RE: WECT/chemicals in the Cape Fear River

Brandon,

Depending on the questions you have it may need to be routed through our PR group. If you stick to facts/explanations from our published efforts on the Cape Fear river in recent years I can answer them.

Concerning what Dr. Coin relayed to you. Once an analyte is discovered to be a source of human exposure the next logical step is to perform a human exposure or biomonitoring effort to understand the degree of exposure. The only way to do this is through the measurement of the analyte in a bio-fluid (serum blood or urine). As this has not yet been done for GenX in this region it seemed like the next logical step. We have tried to get efforts underway with American Red Cross blood donors and with our colleagues at NIEHS. Thus far this has not yet occurred, but we have been in discussions with multiple groups to answer these important questions.

Please let me know what questions you have and I can follow-up.

Mark

From: Wissbaum, Brandon [mailto:bwissbaum@wect.com]
Sent: Monday, July 03, 2017 3:19 PM
To: Strynar, Mark <Strynar.Mark@epa.gov>
Cc: McAdams, Ann <amcadams@wect.com>
Subject: WECT/chemicals in the Cape Fear River

Good afternoon, Dr. Strynar,

I am a journalist with WECT News in Wilmington, NC. I've been working with Ann McAdams on unregulated chemicals in the Cape Fear River. Ann was communicating with Dr. Coin, who passed along your contact information, saying that you and your colleagues first identified GenX and other emerging polyfluorinated contaminants in the Cape Fear River.

Ann is out this week, but I was wondering if you'd be willing to Skype with myself and another reporter at any point this week, or if you'd be willing to at least answer some questions through email?

Dr. Coin also mentioned you and your team are hoping to get a study started to assess any human impact?

If I don't get a chance to speak to you before, hope you have a nice Fourth of July!

Best,

Brandon Wissbaum
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