

## Notes from Chemours meeting with local, state officials

*NOTE FROM STARNEWS: Managing editor Sherry Jones is continuing to clean up the doc for typos and other oddities. Her email is [Sherry.Jones@starnewsonline.com](mailto:Sherry.Jones@starnewsonline.com).*

11:30 a.m. Thursday, June 15, 2017

County managers on the left side of the room

Elected and state officials in the middle

Chemours on the right side

Lawyers on the right side

**Woody White**, chairman of the New Hanover County Board of Commissioners, opening remarks: We want this to be somewhat informal, but meaningful and helpful.

**Kathy O'Keefe**, Chemours product sustainability director, introductory comments:

- Thanked officials for the opportunity .... "to have a very open and candid discussion. I understand it's been a challenging week, a very challenging week. There's been a lot of questions, a lot of concerns that have been raised and our goal today is to answer as many questions as we can"
- "My commitment to you was to gather the experts from the Chemours company and bring those experts down here"
- "One thing that I wanted to make sure you understand is we are very committed to the license to operate here so we are embracing our role and your expectation of us as a responsible manufacturer" ... employ 300 people at Fayetteville Plant
- "Your concerns are our concern and we really want to be part of the solution and make sure we can provide as much information as possible to you.
- "Our belief is that the GenX level in the drinking water coming from the Cape Fear River is safe and it does not pose any harm to human health. We have that belief; we're confident in that belief:
- "We have extensive health and safety data for GenX. GenX is the replacement for ... PFOA. That PFOA substance we phased out of through the voluntary stewardship program with the EPA"
- Submitted through an approval process through the US EPA TSCA program ... that's the normal process in the U.S. for getting a new chemical approved. We did extensive health and safety testing through that process, we submitted it to the EPA and ....
- "We provided a lot of safety studies to the EPA; they asked for some more. They asked for seven more studies in that process. We conducted those studies and we provided them to the EPA years ago and there was no further action on them.
- Consent order called for 99 percent control or capture of the material
- "In fact we capture 100 percent of GenX so the likely question on your minds would be, 'If you capture 100 percent of GenX, how's GenX getting in the river' ... we're manufacturing GenX and it's governed through this consent order ... 100 percent compliance 100 percent of the time. At a different production area of the site we make polyvinyl ether"

- “This is the emissions that are in the Cape Fear River, from this unregulated byproduct.”  
“It’s not about the regulatory piece when we’re manufacturing; it’s a different production unit on site where it’s an unintended by product”
- “We had an unregulated chemical. There’s no requirement to capture emissions of that chemical but we put abatement technology in place and we did that in November of 2013.”

Knappe team samples taken between June and December of 2013 and some additional samples in 2014... mean for the samples is 631 ppt.

- “With that abatement technology that was put in place in November 2013, we have models that calculate the efficiency and how much is reduced of the emissions and that’s about 80 percent reduction” ... 631 down to about 100 ppt ...” “These are calculations. They are not actual samples that have been taken and we recognize it would be better to have actual samples that have been taken; I think that’s what your expectation would be.”
- “We’re committed to (sampling) the activities are underway”
- “It’s our expectation that we would show the levels of GenX in the Cape Fear River have been going down because of the abatement technology that’s been put in place.”
- Generating data, “We did see earlier this week that the NC DHHS did set an advisory level and that level was 70,909 ppt. What we’re looking at here is to confidently say the water is safe. We have the data; the data has been reviewed and considered; the level has been set.”
- “What we believe is that abatement technology that has been put in place will show there have been reductions in the Cape Fear River.”
- There’s an exemption for R and D materials, there’s an exemption for byproducts – in consent order -- “It is a C3 dimer acid, it has the same structure, it has the same (CAS) number” – produced as part of the byproduct process

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**Woody White:** Do you know if it was known in 2009 that the manufacturing process would create the chemical known as GenX?

**Kathy O’Keefe:** All of that is captured, there is no waste there, ... these are low levels that we’re talking about, so a few years ago this would have been ‘it’s not there’ because of the science around detection

**Woody White:** In 2009 when the EPA allowed that authorization, that was not an intended and foreseeable byproduct, is that right?

**Kathy O’Keefe:** ‘The other part of the plant was not reviewed for that consent order’

**Kathy O’Keefe:** The consent order process wouldn’t have had any data around other production units on site ... “unregulated wastes are not regulated under the TSCA new chemicals program”

**Woody White:** You said health studies, Dr. Knappe and other research that we’ve all read seems to cite an animal study, one study. Are there other studies you’ve done and could you identify those?

**Kathy O’Keefe:** In that consent order, they came back and they asked for another six studies ... the one study that they asked for was a chronic toxicity ... that is the definitive study for

determining if a substance is a carcinogen or not. That study was conducted; the results were provided to the EPA. ... (Not identified as a human carcinogen)

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**Frank Williams**, chairman of Brunswick County Board of Commissioners, asked if the decrease had occurred.

**Mike Johnson**, Chemours Fayetteville Works environmental manager: What we did is after the study was published and the concerns were expressed here we had some internal processes that were run back in 2016 with NMR method and during the vinyl ethers process that Kathy was talking about. There's only one of the vinyl ethers that actually produces the GenX compound and it's actually made as an intermediate to that compound ... had 10 results that would show the peak during that process (ppm) ... you can do the math of flow times concentration and get a mass discharge, then I took those 10 numbers and if you count the time it takes to go to the wastewater treatment plant (down the Cape Fear River to the CFPWA intake) ... (it's) right around three days ... can determine what the flow was ... I took them asss that was discharged or created at ...

Models showed an average discharge from the byproduct 'right at 96 ppt.' So if you compare the 96 ..." It comes out to be about 80 percent reduction" so the abatement we put in

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**Wilmington Mayor Bill Saffo**: Has that been shared with DEQ or DHHS?

**Mike Johnson**: Yes

**Bill Saffo**: How about EPA

**Mike Johnson**: No because NC has primary for clean water in this state

**Woody White**: Considering according to Ms. O'Keefe's comments .. did you do it voluntarily?

**Mike Johnson**: Yes .. "We knew the GenX compound is a byproduct of the vinyl ethers process". ..." the manufacturing unit that makes GenX, there's no pipe that leads to the cape fear river so all waste and the water, which is a solid waste, is all containerized and sent off site for incineration. It's incinerated in Arkansas or at a site in ohio

"The realization that APFO none of it was going to the river and DuPont at the time proudly announced this until was built in such a ... no water discharges and very small air emissions.

"Then we transferred to genx, same statement none of that material can get to the Cape Fear River but we were aware the same molecule was coming out as a byproduct"

**Woody White**: What period of time before you realized it and began installing the abatement technology. My second question is the 96 ppt you cited ...?

**Mike Johnson**: It's well within the process itself because analytically our detection limit with NMR is 1 ppm. ... This is actually a process sample that's taken well up into the process of which there's many feeding into the wastewater treatment plant. The average flow on this is about 2k kg per hour and at 1

**Woody White**: And my first question about the time ... When did you install the technology and from that time backwards how long was GenX (being created as a byproduct)

**Mike Johnson**: The discharge of the byproduct would have started with the installation of that process .. from 1980 up until 11/2013, this was a component in our wastewater discharge . In November 2013, when this abatement was installed and started up, thereafter from then on you should have seen an 80 percent reduction in that amount.

We're talking about very, very small levels and if you went back a handful or over 10 years ago on -- all the various water pollutants -- at that time parts per million was pretty much the standard and as time went on, technology got better...

We're working with the Department of Environmental Quality right now, they're going to be sampling 10 locations here in the three county area, Pender County, New Hanover and Brunswick next week there are 10 samples taken

"Chemours is not going to touch it. (The testing) The only thing we're doing is we're paying for it. The DEQ staff will work with the treatment staff to pull the samples. They're going to pull the incoming inlet water and then the finished water just to validate the levels are very very low."

**Frank Williams:** There's no GenX being released in the river from that part of the manufacturing process?

Answer: (Correct)

**Mike Johnson:** "Unfortunately, where it comes out of the process ultimately currently it's in our wastewater flow so as we do the GenX production unit we put all the waste into tankers, it's a small amount of water that's generated. If we tried to do the same thing on this one, it would be three tankers per day going out because it's just a lot of flow."

"It's difficult to burn water is what we're talking about here."

"I'm pretty confident that we've eliminated 80 percent of what was going in the river from 2013 to today."

"The final 20 percent we're currently looking at some possible changes in the process or changes to operation to see if we can reduce that further."

"We're trying to see if we could keep it out of the water."

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**Stephanie Smith,** New Hanover County health board chairwoman

My first question ... is the rate of discharge -- and I don't know if that's the right term-- is it consistent if you go on a daily basis or are there time increments where that concentration is higher?

**Mike Johnson:** "The byproduct is produced only during one campaign and that campaign runs in summation about six months a year and it's not a continual six months ... which is called PPVE, just for clarification here, we like acronyms and PPVE is a continual process so the generation of this on a real time basis should be very, very consistent"

We're going to be sampling our effluent on our site that's going out, we're going to be using a 24 hour composite sampler to do that. ... pull flow and submit that to the lab ...

"It's consistent that it's being generated but when that process is not running, the level should be at or near zero because it's not being generated. As it turns out, if you look at the 2013 sampling ... every time they were sampling the PPVE campaign was running so all those represent when we were running, there was never a period when the unit was down."

"The numbers we're talking about here, the 96 ppt I mentioned, that's when the unit's running so on any given day when it's running it would be that, that should be six months a year, the other 6 months should be at or near zero."

**Stephanie Smith:** I know we've been focusing our discussions so far on water, but if you want to put in the air component.

**Mike Johnson:** “On average, what comes out of that unit is about 40 or 50 pounds per year as an air emission.” ...

**Stephanie Smith:** The air emission is governed under the consent order, right?

**Mike Johnson:** Yes

**Mike Johnson:** The 99 percent control was for the whole corporation and the vast majority of that was at the West Virginia site we had ... 0 (emissions from manufacture) in the water and 50 pounds a year in the air so our numerator and denominator was very small,

**Bill Saffo:** This process, this vinyl process that is creating this compound that has the same components of GenX, how long has it been going on?

**Mike Johnson:** Since 1980.

**Bill Saffo:** “Break it down so the average person can understand that. ... I’m trying to wrap my head around what does the thing look like? What’s going in the river?”

**Mike Johnson:** “I certainly understand that. Our average flow going through our wastewater treatment plant is right at 1 million gallons per day”. ... We pump water out of the Cape Fear River, it passes through heater, cools it and goes right back out...” Those two streams co-mingle, they come together so we have a regulated outfall on our water permit that’s coming out of the water.”

“You’re looking at about 12 million gallons per day of water, of which if you look at how much of the GenX molecule is in there, that would be 100 million pounds per day and divide 2.2 by that so you end up with 20 parts per billion in our effluent, mix that with the river and that’s where it’s going to drive down to about 100 ppt” ... “it’s not like there’s a cup or a swimming pool”

**Bill Saffo:** Is it a pound, is it 10 pounds, is it 13 pounds?

**Mike Johnson:** “What’s been on the news has been flint Michigan, the discovery of lead up there. The limit on lead established under the safe drinking water act is 15,000 ppt. So 15,000 parts per trillion of lead is what’s allowed.” ... It would comply with the safe drinking water act.

“By comparison, what’s in the river, your intakes of this compound is 100 ppt. So compare 15,000 parts per trillion of lead versus 100 of this compound”

**Frank Williams:** “Not to get too picky, but was it a regular pool or an Olympic swimming pool?”

**Mike Johnson:** “It is very, very small. When you look at parts per trillion, you’re looking at very, very small concentrations.”

**Kathy O’Keefe:** What they found in the Flint water was between 30,000 and 50,000 parts per trillion, so here we’re talking it was 631 ppt back in 2013, now we’re ... that safe level

“There’s a huge margin of safety between what was found in the river and the advisory level set by your DHHS.”

**Mike Brown,** chairman of Cape Fear Public Utility Authority board: The limit on GenX is 70,000 parts per trillion... the GenX we are seeing in the river

**Mike Johnson:** There’s a record keeping requirement and if the EPA comes knocking on Chemours’ door they would present the data to them.

“All of these production units are regulated by our Title 5 air unit and air permits.”

“We are regulated but for an unregulated compound, as the name would imply, there’s no regulations requiring limits or monitoring, so this goes back to that.”

“The only regulation or requirement we’re talking about is that TOSCA consent order.”

**Mike Brown:** They issued the consent order, they had some additional requirements for some additional testing ... y'all did that test and submitted it to EPA?

**Kathy O'Keefe:** "The study was a requirement, we conducted the study, we provided it to EPA." ... "There was no follow up on that. In the consent order if you read the language of the consent order, they made a statement that they had some concerns."

"Most substances going through the EPA today have some requirement on them.... gloves, respirators, exposure levels for worker protection and then there's the emissions provision as well and the final requirement is a record keeping requirement."

**Mike Brown:** In addition to what we're going to call GenX ...

**Kathy O'Keefe:** "Everybody's got a different acronym for it"

**Mike Brown:** "There are six other in a layman's terms ways I understand it, variants of this GenX or original GenX compounds (in 2016 study)?"

**Kathy O'Keefe:** "Those other PFCs could come from other users or manufacturers of these PFCs. They could come from firefighting foam that was used at Fort Bragg"... 1 of 7 definitely coming from Chemours ... "They're coming from somewhere, but I can't speak for other users or manufacturers. I don't know where."

**Mike Brown:** "You're saying those other six have been ruled out as coming from your process?"

**Mike Johnson:** "I would not say that. I'd have to look at those compounds." Going back to that study, ... there's a very interesting bar graph and what the study did, they went up to the water treatment system in ... they looked at those three sites and when you looked at the bar graph, you would see compounds detected up in Pittsboro, compounds detected in Fayetteville and compounds found in bladen bluffs.

"What stood out is the compound they call genx was found only at your bladen bluffs treatment a facility and that was not surprising because that's an intermediate we make" ... the GenX one and very admittedly the peak of that thing dwarfed all the others that were on that report.

**George Brown,** chairman of Pender County Board of Commissioners: Did you say the test would be performed on all three counties (Pender, Brunswick, New Hanover)?

**Mike Johnson:** total of 10 samples that will be taken; Smithfield Foods in Tar Heel ... them, Pender County, Brunswick ... "I said how many coolers do you need and (DEQ official) said 10"

**Michael Regan,** secretary of N.C. Department of Environmental Quality: "You indicated that with your modeling with the addition of the abatement technology (resulted in reductions). Is there any plan for you to show with DEQ or share with DEQ the proof of those assumptions?"

**Mike Johnson:** "Oh I'd be happy to."

**Michael Regan:** "Walk us through the level of difficulty of going from an 80 percent to a 100 percent reduction."

**Mike Johnson:** That's going to be difficult to answer ... "The actual initial abatement that was put in in 2013, it was the major one when you make the vinyl ether or product we were attempting to make, the actual feed, the intermediate that's in there is what we call GenX, the C3 dimer acid, and it also generates carbon dioxide"

"For years what was used was a water scrubber. .. a gas permeator was put in that allows the carbon dioxide to go through and leaves the dimer behind, it goes to the next distillation still, they scrub off the product, the dimer is left behind and it goes to our incineration process"

“Even as we speak, they are going to try, the belief is the 20 percent vast majority is coming out of a feed tank that goes to a reactor that makes our vinyl ether and there’s a pressure control system in there” ... “They’re going to try and see if it’s even technically feasible to change the scheme of that venting and see if they can bottle up that tank and see if there is no venting. If that doesn’t cause any process problems, and you don’t know it until you try it, that would be an easy fix.”

Also talk of a cold brine condenser

“There’s different ways of this that are being considered and we’re working diligently to try to do that.”

**Michael Regan:** Any considerations of the time frame?

**Mike Johnson:** If you’re talking about equipment, actual hardware, then you’ve got to spec it out, order ... “At the earliest would be our annual turnaround which occurs from September to October.”

**Michael Regan:** “But the first if it is possible, if it’s very easy, then you’re talking about a very short window?”

**Mike Johnson:** “Oh yeah.”

**Michael Regan:** “Could you give us an approximation?”

**Mike Johnson:** “I’d say within a month. Again, if it works. The best laid plans go amiss.”

**Woody White:** First, you mentioned 12 million gallons a day, I think that’s what you presently average that you withdraw from the Cape Fear River .. (new application includes a 26.5 million gallons per day request).

“I’m just trying to get a picture for what your intentions are as a company, depending on market conditions, increasing production of the substance?”

**Mike Johnson:** The 1 million gallons per day going through our wastewater treatment plant, that’s our process waste. ... “1 million gallons per day, that’s pretty steady 12 months of a year”

**Woody White:** So it’s fair to say you do have plans to increase production or

**Ellis McGaughy,** Fayetteville Works Plant manager: “That water intake feeds three different companies, we’re feeding Kuraray and we’re feeding DuPont, we’re an industrial park. ... “We own the permits so our tenants go through our permits.”

**Woody White:** As it relates to what you said earlier about the fluctuation of 180 days, you answered a question and said 1980 ... the predecessor chemical compound that was withdrawn in the application renewal, the C8, you don’t do that anymore.

“But since 1980 on the vinyl side, you’ve been creating GenX, is that correct?”

**Mike Johnson:** Yes

**Woody White:** When did y’all realize that you could use GenX to serve the same purposes as its predecessor, the C8?

**Mike Johnson:** When DuPont announced we were going to stop the use and the production of the APFO effluent, our research and development started trying to find a replacement that would work. I can’t explain the process that would ...

**Woody White,** presenting 2010 manufacturing brochure that he hands to Mike Johnson, including information about GenX: “I just want to know, did DuPont and subsequently Chemours realize this was marketable and usable, patent it ..?”

**Mike Johnson:** In 1980, no? ...

**Woody White:** So how did you know it was being produced in 1980?

**Mike Johnson:** It was a byproduct in the vinyl ethers process and that process has not changed from 1980 to 2013 when we changed the abatement system so when we scrubbed out the carbon dioxide, we were scrubbing out the dimer acid.

“Take Ibuprofen and Advil. Ibuprofen is the molecule and Advil is the trademark it’s sold under so you can think of the C3 dimer acid as ibuprofen and GenX as Advil.

**Kathy O’Keefe:** I can tell you that one thing the European database for registering chemicals does really well is you can go to a link to search dossiers, you can put in the CAS number I mentioned ... “If you want the complete tox study, dr gannon can certainly make those available”

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**Frank Williams:** It’s important to me to understand the reaction of the audience to something ... How you can help us address the public’s response to this. In relation to that, obviously we’ve been talking about ppt but most people outside this (room don’t know what ppt is)

“What’s your perception of the average citizens take?”

**Kathy O’Keefe:** “I was surprised there was such a strong reaction but I understand it because it’s an emotional issue. I’m a mother. I have two children. I have tons to worry about with my children. I don’t want to worry about what’s in their water, what’s in their food.”

“I think a lot of it is the unknown. There’s this toxic chemical in our water. There’s the first rule of toxicology which is the dose makes the poison. Just because something is present doesn’t mean it’s going to cause harm.”

“When you cook Brussels sprouts, did you know you release formaldehyde?”

“The easiest thing to do is say these are the levels that we see, this is the safe level that has been established and I always use the term margin of safety but there’s probably a better term to use. There’s a safe distance between the (level) seen in the water and the level of safety that’s been set by our agencies.”

**Frank Williams:**” You reinforced my dislike for Brussels sprouts.”

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**Mike Brown:** ”Is cycle (that produces GenX as byproduct) running right now?”

**Mike Johnson:** The current campaign is supposed to run three weeks (more)... “we want to get samples taken during that period, when the campaign is up and running”

“We’re pulling a sample of our effluent three days per week so we’re going to take a Monday, Tuesday, Wednesday sample” ... “If we can line up a discharge for us and their intake so when we do our Monday sample, the coordination is going to be they’re sampling Thursday. ... We’re going to have hopefully three weeks of data for you folks, that’s going to be a once per week pulling samples from your site, we’re going to have a three per week.”

**George Brown:** “Do you plan on continuing GenX? Will it be a continuing thing with you all?”

**Mike Johnson:**” Producing it? Yeah. The production of it, yeah.”

**Woody White:** “What about the discharge of it?”

**Mike Johnson:** “The discharge, the intent is if we’re currently causing say 100 ppt in a public water system and if DHHS has come up with 71k is acceptable, then ... we’re proactively trying to see if we can reduce that further”



**Woody White:** “Has your company considered once the samples are taken ceasing production until we know the answers to those two questions you just posed?”

**Mike Johnson:** “I would say we have not considered it.”... “We’ve got 2016 data that supports that our abatement system did reduce emissions by 80 percent. We have a safe level here. We’ve been down here and now we’re actually lower and I’ve got 10 numbers.”

“I’d use the term, maybe ‘unjustified.’ I understand you’re under a huge amount of pressure from the public, but hopefully, as a result of this meeting if you can convey to them, this is safe. In 2013, it was here. It’s six times lower in 2016 and in 2017, also.”

**Frank Williams:** “People are responding to us emotionally and ... they’re not even worried about themselves, they’re worried about their children. ... They want to know something’s being done differently a week ago more than anything else and action’s being taken to eliminate as best we can the substance in the water.”

“There’s a Facebook group in Wilmington that went from 0 to 7,000 in four days. If there’s something you guys can do that’s a positive, proactive, voluntary step in that direction, that would go a long, long, long way.”

**Woody White:** “EPA allows you to recapture 99 percent on the one side that’s regulated and you capture 100 percent and on the other side you capture 80 percent, you said. It’s the same substance based on your answers. ... That does not meet the common sense test. If the EPA and the federal government have said there’s outstanding questions ... meanwhile just down the street you’re producing that as a byproduct and you’re OK with that, that does not make sense. That’s hard to explain.”

**Mike Johnson:** Let me confuse you further. The whole purpose of the consent order is when DuPont ... “At that time, DuPont didn’t have the tox test completed and submitted per the premanufacturing order ... so the consent order allows DuPont to make in some amount ... until the final report was submitted to satisfy the PMN.

At that point and I think there’s language in there, the consent order ... “It isn’t, ‘Oh from this point forward you’re somehow limited,’ it was to allow the commercialization of a product earlier than if you went the normal route so that was the whole purpose of the consent order.”

**Woody White:** “If it does expire or sunset as you say, do you intend to take your reclamation role from 100 percent down?”

**Mike Johnson:** No

**Kathy O’Keefe:** The question is, ‘it doesn’t make sense, it’s regulated in one place, it’s not regulated in the other... there are a lot of unregulated wastes. We took action from a stewardship perspective because we understand this is something you don’t want in your water. ... We are looking at that, as Mike said. We don’t have a definitive plan. The closer you get to try to lock it up at 100 percent, that technology to put in place gets more and more difficult.”

“We always want to drive, it’s a sustainability principle for us, keep driving our environmental footprint down. It’s important to your communities and it’s a good business proposition, also.”

“We also want to look to see if we can do any process aids that are non-fluorinated. In fact, we do have one that was introduced about two years ago and it’s a non fluorinated processing aid”

**George Brown:** “That’s the thing I’m having the most issue getting my hands around here because the regulated side, the discharge side, the permit with the EPA addresses that” ..” I get

everything you're saying, it's hard for me to explain to folks though how the EPA did not have a requirement on the byproduct side as much as the discharge side"

**Kathy O'Keefe:** "It's a separate regulatory agency. So you have different regulatory agencies that look at different substances for different purposes"

**Kathy O'Keefe:** "It was new in that it was the first time it was added to the TOSCA inventory for commercial substances. Before that it may have been a known chemical structure"

**George Brown:** "It's like you can test one side but you can't test the other side." ... "Our position makes it a little different for us to try to explain that, it doesn't seem like common sense for most folks out there."

**Bill Saffo:** This process has been going on since 1980 so you didn't actually ...

**Kathy O'Keefe:** It was never used. It was produced unintentionally so under the requirements of TOSCA .... "It's made in the byproduct of the process. There's no commercial intent there so it doesn't get regulated until there's commercial intent."

**Bill Saffo:** "So the actual compound has been going into the river since 1980?"

**Kathy O'Keefe:** Yes

**Bill Saffo:** "It's not like this all of a sudden showed up? It's been going in the river since 1980?"

**Mike Johnson:** GenX became a commercial product. ... "Before that time, it was ibuprofen, it was the identical molecule that was unintentionally produced ... That product didn't go into the commercial, if that makes sense, it's after the different reaction that you come up with a whole new molecule."

**Bill Saffo:** "Because it's under different rules and it's unregulated, you can put this in the river?"

**Kathy O'Keefe:** "Permission to manufacture the chemical, the byproduct -- that's not regulated by any regulatory agency."

There's manufacturing something for commercial purposes, that's TOSCA, a waste emission to the river, that's (NPDES)

**Sheila Hollman, DEQ:** Could you all just clarify at what point the detection levels at ppt happen ... at what point did y'all know it was there?

**Mike Johnson:** That came about really through the PFOA analysis where that technique was developed to get down to the parts per trillion then they were using the same machine, the same analytical technique and tweaking it to (find GenX) ... It has been the last few years ....

**Andrew Hartten, Chemours Remediation Principle:** In 2012, when they were getting ready first using GenX in trials, to look for it analytically you have to have a known standard and Wellington Labs who's like a known leader they produced the first analytical standard in 2012, so it's been about five years.

**Frank Williams:** My comment is going back to the whole conversation... "The average citizen out there doesn't know about all the different regulatory agencies and all that. ..."The average citizen doesn't know that or understand that."

What gives you confidence in those that this is safe?

**Kathy O'Keefe:** "I think it's been studied at least as much, if not more, than other chemicals that are out there."

The EPA was replacing the long chain PFC, the PFOA, so the bar was set very high to make sure they had a very good understanding of the risk assessment to understand the hazard, the exposure routes ...

**Sean Gannon**, Chemours Toxicology leader: I do agree with you that it was a tremendous amount of data. There are something along the lines of 25 to 30 studies.

**Woody White**: We sent you a written list of 18 questions ... did you bring written answers?

**Kathy O'Keefe**: "We didn't write up the answers; we were just expecting that we'd have a dialogue."

**Mark Benton**, deputy secretary for health services: "I've heard some references to some data that we put out, some have referred to it as a guidance or a standard ... It was not a regulatory communication, I just want to make sure that as we move on from this table, folks have a good understanding as we pull that together of what it was"

**Zack Moore**, N.C. state epidemiologist

The level that our preliminary calculations came up is the 71,000 level ... "It is a health screening level, it's not a regulatory level, it's not an enforceable level -- that's the level below which we don't expect health effects to occur."

"It can be updated frequently as more data become available"

**Mike Brown**: Is that based on your data or is it available on

**Stephanie Smith**: "With the results of this testing that's about to occur, is it possible the health screening level could change?"

**Zack Moore**: "These are based on toxicity data."

**Mike Johnson**: "If I could inject one thing, I thought DHHS did a really good job in their statement, the discussion has been how to communicate this to the public, to the more lay people ... they did it where it was this level is more than 100 times greater than what was measured in 2013. I think people can measure that better than ng/L because I imagine most of your citizens have no idea what that is."

**Sheila Hollman**: I want to make sure I understand the answer to the question about stopping the discharge to the river. As I understand GenX is part of outfall one and ultimately becomes part of outfall 2. Is it three tanker trucks per day that would be needed to hold outfall 1?

**Mike Johnson**: The smaller stream is the three tankers per day. ...

**Mike Johnson**: Three that's actually the process flow, you're up in the bowels of the process where it's first generated and it's headed down to the wastewater treatment plant. .. I think it's 19k gallons per day so you're looking at three tankers.

**Woody White**: Have you all been discussing that you're willing to inform us about any effort on your part to further educate any members of this community? ... What if any discussions has your company engaged in to try to assuage the hysteria this community's going through?

**Kathy O'Keefe**: "We want to have a conversation with you first" ... We haven't really had a lot of time to think about is there something ...

"I tend to think the community doesn't want to hear from the company. They want to hear from the regulatory agencies and the county. ... If I were somebody in the community, I'm not sure I would trust me coming in and saying everything is safe, ... but we're willing to partner with you as best we can."

**Bill Saffo**: Well, we'd like to see 100 percent capture.

**Woody White**: It's as simple as that. We want to see you turn the faucet off.

**Kathy O'Keefe**: Hopefully, this is the beginning of discussions.

