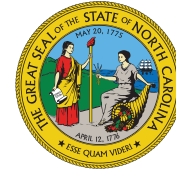


Cape Fear Per- and Polyfluoroalkyl Substances (PFAS) Community Survey



NC DEPARTMENT OF
**HEALTH AND
HUMAN SERVICES**
Division of Public Health

Appendix A: Cape Fear PFAS Community Survey



NC DEPARTMENT OF
**HEALTH AND
HUMAN SERVICES**
Division of Public Health

Cape Fear PFAS Community Survey

Taking part in this survey is completely voluntary. You may skip any question or stop at any time. Your responses will remain anonymous. We will not release your individual responses in any reports, however a summary of all the responses will be provided to the community and published on the NC Department of Health and Human Services (NCDHHS) website.

By proceeding, you indicate that you are 18 years of age or older, and consent to participate in this survey.

If you would prefer to complete the survey online, please visit bit.ly/CapeFearPFAS and enter the 5-digit Survey Number provided at the top of this page.

The survey questions are divided into five sections: Your Home and Drinking Water, Other Activities around Your Home and Community, Health, Communications, and Demographics. If you would like, your household may complete this survey together or one person may complete it for all those living in your home. Please only consider those who live in your home most of the time. We estimate that the survey will take about 20 minutes to complete. You may skip any questions you do not want to answer. When you have completed the survey, please place it in the pre-paid envelope provided and put it in the mail.

State of North Carolina • Department of Health and Human Services
Division of Public Health

www.ncdhhs.gov

www.publichealth.nc.gov

NC DHHS is an equal opportunity employer and provider.

15,398 copies of this public document were printed at a cost of \$3,226.20, or \$0.209521 each. 1/19

Your Home and Drinking Water

The following questions ask about your home and drinking water. You may skip any questions you do not want to answer.

- 1) What county do you live in?
 - Bladen County
 - Cumberland County
 - Robeson County
 - Prefer not to answer

- 2) How long have you lived at your current address?
_____ years _____ months

- 3) Do you have a private well at your home?
 - Yes
 - No → **Skip to question #10**
 - Prefer not to answer → **Skip to question #10**

- 4) Have you had your well tested for GenX or other PFAS?
 - Yes
 - No → **Skip to question #11**
 - Prefer not to answer → **Skip to question #11**

- 5) Was the level of GenX found in your well at or above the NC Department of Health and Human Services' provisional health goal for drinking water of 140 parts per trillion (ppt, sometimes called nanograms/liter)?
 - Yes
 - No → **Skip to question #11**
 - Don't know
 - Prefer not to answer → **Skip to question #11**

- 6) If your well had a level of GenX at or above the NC Department of Health and Human Services' provisional health goal for drinking water (140 ppt), did you receive a letter from the NC Department of Environmental Quality (NC DEQ) advising you not to drink, cook with, brush teeth or make baby formula with your water?
 - Yes
 - No → **Skip to question #11**
 - Prefer not to answer → **Skip to question #11**

- 7) After receiving this recommendation, have you or other people in your household continued to use your well water for any of the following? (check all that apply)
 - Drinking
 - Cooking
 - Brushing your teeth
 - Making baby formula
 - I have stopped using my water → **Skip to question #9**
 - Don't know
 - Prefer not to answer

(Continued on next page) 3

8) If you or other people in your household have continued using your well water for any of the activities mentioned in question 7, please explain why:

9) If you or other people in your household have stopped using your well water for any of the activities mentioned in question 7, what has been challenging about using an alternative water source?

If you answered questions 7-9 please skip to question 12.

10) If you do not have a private well at your home, what is your current, main source of drinking water at home?

- Community well
- Public water (i.e., city or county)
- Bottled water
- Other (Please describe) _____
- Don't know
- Prefer not to answer

11) If you **HAVE NOT** received recommendations from the NC Department of Environmental Quality to stop using your water, have you or other people in your household changed when and how you use your water?

- Yes
- No
- Prefer not to answer

If Yes, please explain what changes you've made and why:

Other Activities around Your Home and Community

The following section includes questions about activities you or other people in your household may do around your home or in your community. At this time, we do not know if any of the following activities are significant sources of exposure to GenX or other PFAS in your community. You may skip any questions you do not want to answer.

12) Do you have a vegetable/produce garden at your home today?

- Yes
- No → **Skip to question #15**
- Prefer not to answer → **Skip to question #15**

13) How often do you eat produce from your garden? (Select one)

- Daily
- Multiple times per week
- Once per week
- Once per month
- A few times per year
- Once per year
- Rarely
- Never
- Don't know
- Prefer not to answer

14) What kinds of produce do you typically grow in your garden? (please list as many as possible)

15) How often do you or other people in your household work or play in the soil in your yard (e.g. gardening, digging, farming, building, etc.)? (Select one)

- Daily
- Multiple times per week
- Once per week
- Once per month
- A few times per year
- Once per year
- Rarely
- Never
- Don't know
- Prefer not to answer

(Continued on next page) 5

16) How often do you or other people in your household eat produce grown on a neighbor's property or other property close to your home? (Select one)

- Daily
- Multiple times per week
- Once per week
- Once per month
- A few times per year
- Once per year
- Rarely
- Never
- Don't know
- Prefer not to answer

17) Besides drinking water, gardening, or working/playing in soil, are you concerned about other ways you or other people in your household may be exposed to GenX or other PFAS? You may list as many as you would like.

18) Have you or other people in your household decreased the amount of time you spend doing any of the following activities after learning about GenX and other PFAS? Check all that apply:

- Gardening
- Fishing
- Swimming in private or community pools
- Swimming or playing in any local waterbodies, such as lakes or rivers
- Working or playing in soil in your yard
- Participating in outdoor recreational activities, such as hiking or playing sports

If you checked any of the above, please explain what changes you've made and why:

19) Has knowledge of GenX and other PFAS caused you or other people in your household to change any other activities you do regularly that are not listed in the previous question?

- Yes
- No
- Prefer not to answer

If Yes, please explain what changes you've made and why:

Health

The following section will ask you a few questions about health concerns you or other people in your household may have. It's important to note that, at this time, we do not know if specific health problems can be attributed to exposure to GenX or other PFAS in your community. You may skip any questions you do not want to answer.

20) Do you or other people in your household have any health concerns related to exposure to GenX or other PFAS?

- Yes
- No
- Prefer not to answer

If Yes, please share more:

21) Are there other health problems you are concerned about in your community?

- Yes
- No
- Prefer not to answer

If Yes, please share more:

(Continued on next page) 7

Communications

Since June 2017, the North Carolina Department of Health and Human Services (NCDHHS) has assisted the North Carolina Department of Environmental Quality in the response to GenX and other PFAS in your community. NCDHHS’s role in this response has been to provide health information to communities about exposures to GenX and other PFAS. NCDHHS has provided information at community meetings, distributed fact sheets about the health effects of GenX and other PFAS, and developed a provisional drinking water health goal. The following questions will ask you about NCDHHS’s work in your community. You may skip any questions you do not want to answer.

22) The following table lists some of the activities the NC Department of Health and Human Services has done in your community. Please rate how helpful each of these activities were.

Activity	Very unhelpful	Somewhat unhelpful	Somewhat helpful	Very helpful	Don't Know/Does Not Apply
Presentations provided to large groups at community meetings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Panel discussions at community meetings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Distributing GenX and PFAS fact sheets at meetings, in mailings, or online	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Establishing a provisional drinking water health goal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
One-on-one conversations either in-person or over the phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

23) Has the NC Department of Health and Human Services helped you or other people in your household better understand ways to avoid exposure to GenX and other PFAS?

- Yes
- No
- Some, but not all
- Don't know
- Prefer not to answer

24) Has the NC Department of Health and Human Services helped you better understand the potential health effects of GenX and other PFAS by sharing information through community meetings, factsheets, or talking with you?

- Yes
- No
- Don't know
- Prefer not to answer

25) What other information or resources would you like from the NC Department of Health and Human Services that have not been provided so far?

26) Do you have any other feedback about the NC Department of Health and Human Services' response to the GenX situation?

- Yes
- No
- Prefer not to answer

If Yes, please share your feedback:

27) How do you like to receive information about upcoming events where information about GenX and other PFAS will be shared? Check all that apply:

- Newspaper
- TV
- Radio
- Word of mouth
- Church Announcement
- Email
- Social Media (please specify) _____
- Press Release
- Mail
- Other (please specify) _____
- Prefer not to answer

28) What format do you prefer to receive new information about the GenX and other PFAS investigation? Check all that apply:

- Presentation at a community meeting
- One-on-one conversation at a community meeting
- Information presented on posters and fact sheets at a community meeting
- Fact sheets mailed to your home
- Panel Discussion
- NC Department of Environmental Quality (NC DEQ) Website
- News Reports
- Other (please specify) _____
- Prefer not to answer

(Continued on next page) 9

Demographics

The following section will ask a few questions about you and other people living in your home. You may skip any questions you do not want to answer.

29) How many people live in your home?

30) Are there any children under 12 years old living in your home?

- Yes
- No
- Prefer not to answer

31) Are there any adults over the age of 65 living in your home?

- Yes
- No
- Prefer not to answer

32) What is the highest grade or year of school anyone in your home has completed?

- Never attended school
- 8th grade or less
- Some high school, but did not graduate
- High school graduate or GED
- Some college or 2-year degree
- 4-year college graduate
- More than a 4-year college degree
- None of the Above
- Prefer not to answer

33) Is there anything else you would like to share with the NC Department of Health and Human Services?

Thank you for taking this survey!

Your input is important to ensure we are providing you and your community with the best services possible.

If you have any questions, please contact:

Health Assessment, Consultation & Education Program (HACE)

Telephone: (919) 707-5900

E-mail: nchace@dhhs.nc.gov

Address: N.C. Division of Public Health
OEE/HACE
1912 Mail Service Center
Raleigh, NC 27699-1912

If you would like to receive information about upcoming events, please fill out and detach the below contact card. You may place this in the return envelope with your completed survey. This information will not be kept with your responses to the survey.

Tear Here

Name:	_____
Phone (____)	_____
E-mail:	_____
Address:	_____
City: _____, NC	Zip code: _____
Preferred contact method:	<input type="checkbox"/> E-mail <input type="checkbox"/> Phone <input type="checkbox"/> Mail

Appendix B: Data Tables for All Survey Questions

Demographics

Table 1. Demographics of Survey Respondents

RESPONSES	N	%
Survey Mode • N=1,858		
Mail	1,711	92
Web	147	8
County of Residence • Question #1 • N=1,837		
Bladen	252	14
Cumberland	1,138	62
Robeson	447	24
Any children under 12 years old • Question #30 • N=1,746		
Yes	390	22
No	1,356	78
Any adults over 65 years old • Question #31 • N=1,762		
Yes	754	43
No	1,008	57
Household educational attainment • Question #32 • N=1,711		
Never attended school	1	<1
≤ 8th grade	8	<1
Some high school	47	3
High school graduate or GED	314	18
Some college or 2-year degree	620	36
4-year college graduate	345	20
> 4-year college degree	376	22
	Median	Range
Length of Residence • Question #2 • N=1,816	15 years, 3 months	1 month–94 years
Number living in home • Question #29 • N= 1,753	2 people	1–10 people

Water Usage

Table 2a. Water Source

RESPONSES	N	%
Main Source of Drinking Water at Home* • Questions #3 and 10 • N=1,803		
Private well	1,113	62
Public water (i.e. city or county)	632	35
Bottled water	226	13
Community well	13	1
Other (Includes Filter/ Filtration system [N=12])	21	1
Don't know	2	<1

* Respondents were able to select more than one drinking water source for their home.

Table 2b. Private Well Testing and Water Use Changes

RESPONSES	N	%
Private Well Tested for GenX or other PFAS • Question #4 • N=1,087		
Yes	285	26
No	802	74
Private Well Testing Result \geq 140 ppt • Question #5 • N=273		
Yes	107	39
No	110	40
Don't know	56	21
Received NCDEQ Letter • Question #6 • N=103		
Yes	90	87
No	13	13
Water Usage after Receiving Recommendations * • Question #7 • N=86		
Drinking	5	6
Cooking	9	10
Brushing teeth	25	29
Making baby formula	1	1
Stopped using water	57	66
Don't know	1	1
Did not receive NCDEQ recommendations and changed water use • Question #11 • N=1,585		
Yes	543	34
No	1,042	66

* Respondents were able to select more than one response for this question.

Table 3. Reasons for Continuing to Use Well Water after Receiving Do Not Drink Letter

Question #8 • N=39

THEME*	DESCRIPTION OF THEME	N	%
Brushing teeth	Continued using water for brushing teeth	12	31
Other uses	Continued using water for other uses not included in recommendations from NC DEQ	8	21
Bathing/Showering		6	15
Laundry		3	8
Pets		2	5
Washing dishes		2	5
No alternative	No access to alternative water sources	8	21
Lack of information/ Misinformation	Not aware that they were not supposed to be using their water for certain activities (e.g. brushing teeth)	5	13
Perceived low risk	Perceived the risk of using their water to be low	5	13
Inconvenient	Inconvenient to use an alternative source	3	8
Expense	Expense of using an alternative source	2	5

* Themes are based on common responses among at least 5% of respondents (n≥2). Responses could fall under multiple themes.

Table 4. Challenges of Using an Alternative Water Source

Question #9 • N=96

THEME*	DESCRIPTION OF THEME	N	%
Inconvenience	Using alternative water is inconvenient	71	74
Physical	Lifting, moving, etc. of bottled water is difficult/ inconvenient	22	23
Storage	Storing bottled water is inconvenient	18	19
Disposal	Disposing of bottled water/jugs is inconvenient or wasteful	10	10
Activities	Using bottled water/alternative water for various activities is challenging	27	28
Cooking		13	14
Making ice		8	8
Drinking		7	7
Brushing teeth		6	6
Bathing		5	5
Cost	Buying bottled water/alternative water is expensive	21	22
Health concerns	Worry or fear of health concerns	5	5

* Themes are based on common responses among at least 5% of respondents (n≥5). Responses could fall under multiple themes.

Table 5. Changes to Water Usage Without Receiving NCDEQ Recommendations

Question #11 • N=507

THEME*	DESCRIPTION OF THEME	N	%
Use bottled water	Switched to using bottled water	313	62
Drinking	Using bottled water for drinking	229	45
Not specified/Other	Using bottled water but didn't specify or indicated uses other than drinking or cooking	99	20
Cooking	Using bottled water for cooking	74	15
Limited use of well water	Have limited or stopped use of well water	117	23
Do not drink	No longer use well water for drinking	82	16
Do not cook	No longer use well water for cooking	33	7
Limited use	Have generally limited use of well water or no longer use it for activities other than drinking and cooking	30	6
Use filtered water	Switched to using filtered water	81	16
Not specified/Other	Using filtered water but didn't specify or indicate uses other than drinking	58	11
Drinking	Using filtered water for drinking	38	7
Use other water	Switched to using other water (e.g., boiled water, connecting to public water)	46	9
Limited use of public water	Have limited or stopped use of public water	34	7
Do not drink	No longer use public water for drinking	30	6

* Themes are based on common responses among at least 5% of respondents (n≥23). Responses could fall under multiple themes.

Table 6. Reasons for Changes to Water Usage Without Receiving NCDEQ Recommendations

Question #11 • N=184

THEME*	DESCRIPTION OF THEME	N	%
Concern about PFAS	Changed water usage because of concerns about GenX and other PFAS	77	42
Aesthetic reasons	Changed water usage because of issues with the look, taste, or smell of their water	52	28
Appearance	Changed water usage because of the look of their water	29	16
Taste	Changed water usage because of the taste of their water	26	14
Smell	Changed water usage because of the smell of their water	24	13
Not PFAS related	Changed water usage for something other than GenX and other PFAS	25	14
Concern about contamination (non-specific)	Changed water usage because of concerns about contamination but was not specific	23	13
Want water tested	Changed water usage because they want their water tested before using	23	13
Lack of trust	Changed water usage because they don't trust that their water is safe	18	10
Concern about health	Changed water usage because of concerns about health effects of using their water	16	9

* Themes are based on common responses among at least 5% of respondents (n≥9). Responses could fall under multiple themes.

Other Activities Around the Home or Community

Table 7. Gardening and Other Activities Around Your Home and Community

RESPONSES	N	%
Have a Vegetable/ Produce Garden at Home • Question #12 • N=1,804		
Yes	516	29
No	1,288	71
Frequency of Eating Produce from Own Garden • Question #13 • N=501		
Daily	58	12
Multiple times per week	202	40
Once per week	72	14
Once per month	16	3
A few times per year	123	25
Once per year	11	2
Rarely	6	1
Never	4	1
Don't know	9	2
Frequency of Working or Playing in Soil in Yard • Question #15 • N=1,813		
Daily	230	13
Multiple times per week	497	27
Once per week	233	13
Once per month	123	7
A few times per year	346	19
Once per year	14	1
Rarely	202	11
Never	129	7
Don't know	39	2
Frequency of Eating Produce Grown in Neighbor's Garden or Nearby • Question #16 • N=1,799		
Daily	19	1
Multiple times per week	106	6
Once per week	52	3
Once per month	81	5
A few times per year	452	25
Once per year	31	2
Rarely	329	18
Never	640	36
Don't know	89	5

Table 8. Types of Produce Grown in Gardens

Question #14 • N=552

THEME*	DESCRIPTION OF THEME	N	%
Tomatoes	Tomatoes, cherry tomatoes	447	81
Peppers	Bell peppers, jalapenos, habaneros	266	48
Cucumbers	Cucumbers	259	47
Squash	Squash	247	45
Beans	Beans, green beans, butter beans	155	28
Potatoes	Potatoes, sweet potatoes, white potatoes	150	27
Corn	Corn	139	25
Peas	Peas	131	24
Watermelon	Watermelon, melon	125	23
Okra	Okra	121	22
Collards	Collards	105	19
Onions	Onions, chives, green onions	86	16
Herbs	Herbs, basil, thyme, rosemary, parsley, mint	84	15
Cabbage	Cabbage	75	14
Lettuce	Lettuce	63	11
Turnips	Turnips	61	11
Blueberries	Blueberries	59	11
Zucchini	Zucchini	55	10
Cantaloupe	Cantaloupe	49	9
Grapes	Grapes	44	8
Eggplant	Eggplant	41	7
Strawberries	Strawberries	33	6
Carrots	Carrots	29	5
Greens	Type of greens not specified	29	5
Radishes	Radishes	27	5
Broccoli	Broccoli, cauliflower	26	5
Mustard Greens	Mustard greens, mustard	26	5

* Themes are based on common responses among at least 5% of respondents (n≥25). Responses could fall under multiple themes.

Table 9. Behavioral Change after Learning about GenX or other PFAS

RESPONSES	N	%
Percentage of households decreasing activities* • Questions #18 and 19 • N=709		
Fishing	312	44
Gardening	310	44
Other regular activities	301	42
Swimming/playing in local bodies of water	298	42
Working or playing in soil in yard	237	33
Swimming in private or community pools	212	30
Participating in outdoor recreational activities	117	17

*Respondents were able to select more than one activity.

Table 10. Concerns about ways you may be exposed to GenX and other PFAS besides drinking water
Question #17 • N=947

THEME*	DESCRIPTION OF THEME	N	%
Air	Concerned about exposure through air or weather-related events	304	32
Rain	Concerned about being exposed through rain	47	5
Personal hygiene	Concerned about exposure during personal hygiene activities, such as bathing, showering, washing hands, or brushing teeth	252	27
General	Generally concerned about being exposed in other ways	102	11
Animals	Concerned about their animals being exposed	99	10
Swimming	Concerned about being exposed while swimming, either in local water bodies (lakes, creeks, etc.) or pools	90	10
Pool	Concerned about being exposed while using a swimming pool	56	6
Cleaning	Concerned about being exposed while cleaning around the home	86	9
Laundry	Concerned about being exposed while washing clothes	58	6
Dishes	Concerned about being exposed while washing dishes	47	5
Food	Concerned about being exposed through food (e.g., fish, eggs, honey)	80	8
Uncertain	Concerned about being exposed in other ways but not sure how	79	8
Other drinking water	Concerned about being exposed through other drinking water, such as public water or through making ice or coffee	67	7
Surface water	Concerned about being exposed through contact with surface water on ponds, lakes, rivers, etc. (e.g., fishing, boating, swimming)	65	7
Outdoor activities	Concerned about being exposed during outdoor activities, such as playing, working, hiking or walking	51	5
Cooking	Concerned about being exposed while cooking	50	5

* Themes are based on common responses among at least 5% of respondents (n≥43). Responses could fall under multiple themes.

Table 11. Changes to Regular Activities around the Home or Community

Questions #18 and 19 • N=429

THEME*	DESCRIPTION OF THEME	N	%
Water usage	Made changes to when and how they use their water, such as no longer bathing or using for consumption	165	38
Eating less local food	Made changes to how much local food they eat, such as seafood/fish, wild game (hunting), or produce	64	15
Other changes**	Made other changes to regular activities, such as changes to pet's activities or using protective clothing outside	59	14

* Themes are based on common responses among at least 5% of respondents (n≥20). Responses could fall under multiple themes.

**Items included in "Other changes" were observed in less than 5% of responses.

Table 12. Reasons for Changes to Regular Activities around the Home or Community

Questions #18 and 19 • N=239

THEME*	DESCRIPTION OF THEME	N	%
Concern about PFAS	Concerned about being exposed to GenX and other PFAS during these activities or potential health effects because of exposure	180	75
Fear	Noted fear or worry of being exposed while participating in certain activities	52	22
Unaware	Not aware of problems with GenX and other PFAS before receiving survey	32	13
Unknown	Made changes because not sure of effects or levels in the environment	30	13

* Themes are based on common responses among at least 5% of respondents (n≥11). Responses could fall under multiple themes.

Health

Table 13. Health Concerns

RESPONSES	N	%
Household Health Concerns • Question #20 • N=1,409		
Yes	615	44
No	794	56
Community Health Concerns • Question #21 • N=1,385		
Yes	546	39
No	839	61

Table 14. Health Concerns by Drinking Water Source (N=1,363)*

WATER SOURCE**	Health Concerns Related to GenX or Other PFAS			
	YES		NO	
	N	%	N	%
Private Well (N=833)	463	56	370	44
Public Water (i.e. city or county) (N=482)	131	27	351	73
Bottled Water (N=161)	57	35	104	65
Community Well (N=7)	4	57	3	43
Other (N=15)	6	40	9	60

* Responses were included in this table if participants responded to the household health concerns question and reported their drinking water source.

**Some participants marked more than one water source.

Table 15. Health Concerns by Current Home Gardening (N=1,374)*

HAVE A VEGETABLE/ PRODUCE GARDEN	Health Concerns Related to GenX or Other PFAS			
	YES		NO	
	N	%	N	%
Yes (N=377)	231	61	146	39
No (N=997)	366	37	631	63

* Responses were included in this table if both questions were answered.

Table 16. Household Health Concerns

Question #20 • N=680

THEME*	DESCRIPTION OF THEME	N	%
Uncertain	Don't know, unknown, not sure, uncertain, what are the effects?, need more information	237	35
Cancer	Cancer, carcinogen, cancerous	162	24
Other health**	Other health effects noted less frequently, including headaches/dizziness, developmental effects, neurological effects, diabetes, stress or fear, allergies, liver effects, etc.	109	16
Long-term/Chronic effects	Long-term effects, chronic health, concern about future health effects	72	11
Animals	Animals' health (e.g. livestock, chickens, horses, dogs, cats, pets)	49	7
General health	General health risk, all health concerns, anything	47	7
Skin	Skin, eczema, rashes, itching, boils	46	7
Respiratory	Asthma, lung effects, COPD, coughing, sinus issues, respiratory effects	40	6
Gastrointestinal	Stomach, esophageal, gallbladder, intestinal, or gastrointestinal effects, digestive issues, indigestion, nausea	38	6
Musculoskeletal	Bone, muscle, or joint issues, arthritis, muscular degeneration, effects on ability to walk, fibromyalgia	29	4
Cardiovascular	Heart or blood effects, cholesterol, high blood pressure, hypertension	25	4
Immune	Immune effects, autoimmune disorders, more frequent illness	25	4
Tumors	Tumors, cysts, growths	23	3
Reproductive	Preeclampsia, effects on pregnancy, reproductive, breast, prostate, and testicular effects, miscarriage	21	3
Thyroid	Thyroid effects	19	3
Urinary	Bladder, kidney and urinary effects	17	3

* Themes are based on common responses among at least 2.5% of respondents (n≥17). Responses could fall under multiple themes.

**Items included in "Other health" were observed in less than 2.5% of responses.

Table 17. Other Community Concerns

Question #21 • N=578

THEME*	DESCRIPTION OF THEME	N	%
Cancer	Cancer, carcinogen, cancerous	196	34
Other health**	Other health effects noted less frequently, including skin issues, gastrointestinal, developmental, urinary and immune effects, etc.	108	19
Water quality	Concerns about water quality, water issues, surface water (lakes, creeks, rivers)	85	15
Drinking water quality	Drinking water, public water, taste/color/smell of water	60	10
Uncertain	Don't know, unknown, not sure, uncertain, what are the effects?, need more information	79	14
Air quality	Air quality, breathing	44	8
Animals	Animals' health (e.g. livestock, chickens, horses, dogs, cats, pets)	43	7
Long-term/Chronic effects	Long-term effects, chronic health, concern about future health effects	30	5
Neurological	Brain and neurologic effects, Alzheimer's, effects on cognitive abilities, tremors	19	3
Respiratory	Asthma, lung effects, COPD, coughing, sinus issues, respiratory effects	19	3
Standing water	Standing or stagnant water, flooding, drainage issues	18	3
Tumors	Tumors, cysts, growths	16	3
Stress/Fear	Stress, anxiety, fear	15	3
Trash	Trash, garbage, litter, waste	15	3

* Themes are based on common responses among at least 2.5% of respondents (n≥15). Responses could fall under multiple themes.

**Items included in "Other health" were observed in less than 2.5% of responses.

Communications

Table 18. Helpfulness of NCDHHS Activities

Question #22

ACTIVITY	VERY UNHELPFUL		SOMEWHAT UNHELPFUL		SOMEWHAT HELPFUL		VERY HELPFUL	
	N	%	N	%	N	%	N	%
Presentations provided to large groups at community meetings (N=579)	152	26	105	18	241	42	81	14
Panel discussions at community meetings (N=530)	158	30	109	21	192	36	71	13
Distributing GenX and PFAS fact sheets at meetings, in mailings, or online (N=657)	168	26	107	16	230	35	152	23
Establishing a provisional drinking water health goal (N=608)	209	34	91	15	154	25	154	25
One-on-one conversations either in-person or over the phone (N=467)	198	42	63	14	121	26	85	18

Table 19. Has NCDHHS Helped You Understand:

RESPONSES	N	%
Ways to avoid exposure to GenX and other PFAS • Question #23 • N=1,742		
Yes	72	4
No	1,325	76
Some, but not all	164	9
Don't know	181	10
Potential health effects of GenX and other PFAS • Question #24 • N=1,710		
Yes	181	11
No	1,277	75
Don't know	252	15

Table 20. Preferred Methods of Communication

RESPONSES	N	%
Upcoming events* • Question #27 • N=1,701		
Mail	1,311	71
TV	706	38
Newspaper	535	29
Email	512	28
Radio	371	20
Social Media (See Table 21)	288	16
Press Release	262	14
Word of mouth	248	14
Church Announcement	204	11
Other	158	9
New information about GenX and other PFAS* • Question #28 • N=1,688		
Fact sheets mailed to your home	1,448	78
News Reports	690	37
Presentation at a community meeting	441	24
NCDEQ Website**	354	19
Information presented on posters and fact sheets at a community meeting	252	14
One-on-one conversation at a community meeting	241	13
Panel discussion	169	9
Other	138	7

* Respondents were able to select more than one communication method. **NCDEQ= NC Department of Environmental Quality

Table 21. Preferred Type of Social Media (N=190)*

TYPE	N	%
Facebook	160	84
Twitter	22	12
Instagram	10	5
Nextdoor	9	5
Website (health department or news)	8	4
Other (e-mail, radio, TV, news)	8	4
Snapchat	3	2
All types	3	2
YouTube	1	<1

* Respondents were able to provide more than one social media platform.

Table 22. Other Information or Resources Wanted from NCDHHS

Question #25 • N=858

THEME*	DESCRIPTION OF THEME	N	%
Communication	Want better communication, want communication in a particular format, request more information about GenX and PFAS	347	40
Test water	Want to have their water tested or want information on how to test their water	210	24
Never heard	Never heard of GenX/PFAS, includes people who have heard about it but indicated they had never heard from NCDHHS	154	18
Health information	Indicated concerns about health effects from exposure and a desire to have more information about health impacts, includes requests for blood testing or health studies	130	15
Safe water	Want to be provided with safe alternative water (can include county/city water hook up, bottled water, or a filtration system)	65	8
Environmental testing	Want other environmental media tested (besides water); also includes responses that want testing without specifying exactly what kind	50	6
Remediation	Want clean-up, long-term solution, fixing of the problem, have questions about the next steps	47	5

* Themes are based on common responses among at least 5% of respondents (n≥39). Responses could fall under multiple themes.

Table 23. Other Feedback about NCDHHS' response to GenX and other PFAS

Question #26 • N=410

THEME*	DESCRIPTION OF THEME	N	%
Performance	Feedback on state performance during response, including lack of timely response, poor outreach, mistrust, complacency	113	28
Communication	Want better communication, want communication in a particular format, request more information about GenX and PFAS	108	26
Regulation/Take action	Want regulations to be enforced, action to be taken, plant to be shut down, or polluters to be held responsible	67	16
Never heard	Never heard of GenX/PFAS, includes people who have heard about it but indicated they had never heard from NCDHHS	64	16
Test water	Want to have their water tested or want information on how to test their water	58	14
Safe water	Want to be provided with safe alternative water (can include county/city water hook up, bottled water, or a filtration system)	47	11
Health information	Indicated concerns about health effects from exposure and a desire to have more information about health impacts, includes requests for blood testing or health studies	22	5

* Themes are based on common responses among at least 5% of respondents (n≥19). Responses could fall under multiple themes.

Table 24. Anything else shared with NCDHHS

Question #33 • N=463

THEME*	DESCRIPTION OF THEME	N	%
Regulation/ Take action	Want regulations to be enforced, action to be taken, plant to be shut down, or polluters to be held responsible	145	31
Communication	Want better communication, want communication in a particular format, request more information about GenX and PFAS	119	26
Testing	Want to have their water tested, want information on how to test their water, or want other environmental testing	81	17
Health information	Indicated concerns about health effects from exposure and a desire to have more information about health impacts, includes requests for blood testing or health studies	75	16
Public water	Want connection to city or county water	37	8
Appreciation	Indicated appreciation or thanks for sending survey or efforts to help	28	6

* Themes are based on common responses among at least 5% of respondents (n≥21). Responses could fall under multiple themes.



NC Department of Health and Human Services • Division of Public Health

<https://publichealth.nc.gov/> • NCDHHS is an equal opportunity employer and provider. • 12/2019

This publication was made possible by Grant Number NU61TS000291 from the Agency for Toxic Substances and Disease Registry. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Agency for Toxic Substances and Disease Registry, or the US Department of Health and Human Services.