NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

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[Date]

[Name
Address
City, State, Zip code]

Dear [Insert Name],

Thank you for being a part of the North Carolina Department of Health and Human Services (NCDHHS) Per- and Polyfluoroalkyl Substances (PFAS) exposure investigation. The Centers for Disease Control and Prevention (CDC) has tested the blood and urine samples that you provided for specific PFAS. This letter provides your test results and explains what the results mean based on the available scientific information. We will not share your results or other identifying information about you with anyone else. You may share these results with others including your doctor if you would like — it's your choice. If you decide to share your results with your doctor, we are including a letter you can give them that provides more information to discuss your results.

How to Read the Results of Your Blood and Urine Tests

On the next few pages, you will find a summary of the investigation results and tables showing your personal results and the results from all 30 people tested in this investigation.

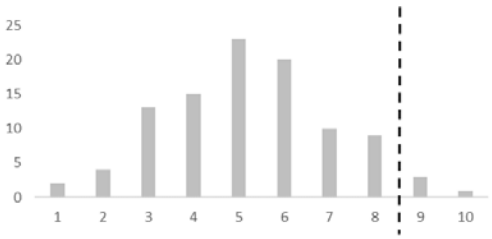
Table 1 provides a list of the specific PFAS that were measured in your blood or urine. The table also lists the abbreviation for each PFAS.

Table 2 shows the levels of specific PFAS we found in your blood and urine. If the PFAS was detected, we provide the level that was found. If the PFAS was not detected, the result will be reported as less than the limit of detection (LOD) of the laboratory test and shown in the table as —. This means that although we can't be sure that the PFAS is not there, it is at a level lower than the laboratory methods can find. The LOD for these PFAS is 0.1 µg/L (micrograms per liter).

When available, the table also shows levels for specific PFAS measured in the general population of the United States during 2013–2014, the most recent period for which CDC has published data. These values were determined as part of a national survey called the National

Health and Nutrition Examination Survey, or NHANES. Every year, the CDC examines about 5,000 people (aged 12 and over) from across the country. As part of the survey, CDC takes blood and urine samples and tests them for chemicals like PFAS.

US general population levels are described using the median (the middle level where half of the people tested have a level below and half above the median), and the 95th percentile (the level that 95% of people tested were at or below). For example, in this figure, the dotted black line represents the 95th percentile.



Below is a guide for reading the results in Table 2.

These columns show the median (middle level) and the lowest and highest levels of all 30 North Carolina residents tested.

These columns show the median (middle level) and the 95th percentile from the 2013–2014 NHANES survey.

	Your Results	North Carolina Residents (n = 30)			US Population[a]	
PFAS		**Median**	**Lowest**	**Highest**	**Median**	**95th Percentile**

This column lists the PFAS measured.

This column shows the level of each PFAS found in your blood or urine.

It is important to remember that results of blood and urine testing show whether you have been exposed to a specific PFAS. These results cannot tell you if the PFAS levels in your blood or urine are related to past or current health problems. These results also cannot tell you what finding these chemicals might mean for your health later in life, even if your levels are higher than the US population.

Results

CDC tested blood samples for all of the PFAS listed in Table 1. CDC also tested urine samples for all of the PFAS listed in Table 1 except for Me-PFOSA-ACOH2, which there is no available laboratory method to measure in urine.

Key findings include:

- GenX was not detected in blood or urine from any of the 30 participants.
- Only one PFAS was detected in urine samples; the PFAS detected was PFHxA and was found in one participant's urine at a level close to the limit of detection.
- Most PFAS were either not detected in blood or were detected at levels similar to available US population levels.
- The median, or middle, levels of PFHxS and n-PFOS detected in participants were higher than the median levels found in the US population.

NCDHHS is continuing to analyze these data and will provide a full summary of the aggregate results from all 30 participants soon.

Table 1. List of measured PFAS and their abbreviations.

PFAS	Abbreviation
ammonium salt of 2,3,3,3,-tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoate [HFPO-DA](GenX)	GenX
perfluorobutane sulfonic acid	PFBUS
Perfluorohexanoic acid	PFHxA
Perfluorobutanoic acid	PFBA
Perfluoroheptanoic acid	PFHpA
Perfluoropentanoic acid	PFPeA
Dodecafluoro-3H-4,8-dioxanoate	NADONA
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF
2-(N-methyl-perfluorooctane sulfonamido) acetate	Me-PFOSA-ACOH2
perfluorohexane sulfonic acid	PFHxS
n-perfluorooctanoate	n-PFOA
branched perfluorooctanoates	Sb-PFOA
Perfluorodecanoate	PFDEA
Perfluoroundecanoate	PFUA
Perfluoromethylheptane sulfonates	Sm-PFOS
n-perfluorooctane sulfonate	n-PFOS
Perfluorononanoate	PFNA

Table 2. Summary of PFAS levels found in your blood and urine, and the blood and urine of all investigation participants in your community (n=30) and in the US population.

	Your Result	North Carolina Residents (n = 30)			US population[a]	
PFAS		**Median**	**Lowest**	**Highest**	**Median**	**95th Percentile[b]**
Blood	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
GenX		—	—	—	Not measured	
PFBUS		—	—	—	—	—
PFHxA		—	—	—	Not measured	
PFBA		—	—	—	Not measured	
PFHpA		—	—	0.6	—	0.2
PFPeA		—	—	—	Not measured	
NADONA		—	—	—	Not measured	
9Cl-PF		—	—	—	Not measured	
Me-PFOSA-ACOH2		—	—	0.6	—	0.6
PFHxS		2.1	0.7	6.7	1.4	5.6
n-PFOA		1.75	0.4	7.3	1.9	5.3
Sb-PFOA		—	—	—	—	0.2
PFDEA		0.15	—	1.3	0.2	0.7
PFUA		—	—	0.5	—	0.5
Sm-PFOS		1.2	0.2	7.4	1.5	5.1
n-PFOS		5.4	1.4	34.6	3.5	14
PFNA		0.6	—	2.1	0.7	2.0
Urine						
GenX		—	—	—	Not measured	
PFBUS		—	—	—		
PFHxA		—	—	0.4		
PFBA		—	—	—		
PFHpA		—	—	—		
PFPeA		—	—	—		
NADONA		—	—	—		
9Cl-PF		—	—	—		
PFHxS		—	—	—		
n-PFOA		—	—	—		
Sb-PFOA		—	—	—		
PFDEA		—	—	—		
PFUA		—	—	—		
Sm-PFOS		—	—	—		
n-PFOS		—	—	—		
PFNA		—	—	—		

Dashed line (—) = less than the limit of detection; µg/L = micrograms per liter of blood or urine

[a] Source: CDC. The National Report on Human Exposure to Environmental Chemicals, Updated Tables, February 2017. Available at: https://www.cdc.gov/exposurereport.

[b]The 95th percentile is the level that 95% of people tested were at or below.

What do These Results Mean for Your Health?

These results tell you how much PFAS was in your blood or urine **at the time when the samples were collected**. Scientists do not know how long many of these chemicals can stay in your body; therefore, we do not know how much of each chemical was in your body a year ago or what will be in your body in the future.

For the PFAS that have been measured in a national sample of people, you can compare your results with others from across the United States. Scientists do not fully understand the health effects of human exposure to PFAS. Some studies in humans on specific PFAS, including PFOA and PFOS, have shown that these chemicals may affect the developing fetus and child, including possible changes in growth, learning, and behavior. In addition, some PFAS may decrease fertility and interfere with the body's natural hormones, increase cholesterol, affect the immune system, and possibly increase cancer risk. However, no studies in humans have been conducted to examine the health effects of exposure to newer PFAS, including GenX.

While scientific research on PFAS is growing, for now these blood and urine test results cannot tell you:

- If a past or current health problem that you are experiencing is related to the PFAS levels found in your body.
- If the PFAS levels in your body will make you sick now or later in life.
- How and where you were exposed.
- When or how often you were exposed.
- How long the exposure lasted.
- How much of the chemical you were exposed to.

Your results, when combined with others who participated in your community, may help us better understand exposures in North Carolina and provide information needed for human health studies to be done in the future.

Your personal test results will be kept private and confidential. Your results will be combined with other participants in your community and used in a summary report; however, the report will not identify you.

We are including several fact sheets with more information about PFAS. **If you have questions or would like to discuss your results, you can call the Occupational and Environmental Epidemiology Branch of the North Carolina Division of Public Health at 919-707-5900.**

Thank you for being part of this PFAS exposure investigation.