Department of Toxic Substances Control

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Governor

Date

Participant ID:

Dear [Participant],

Thank you very much for taking part in Biomonitoring California's Laboratory Pilot Study in [Year]. The purpose of this pilot study is to support the development of laboratory methods by the Environmental Chemistry Laboratory (ECL) at the Department of Toxic Substances Control (DTSC), and to test new program materials for returning results to study participants.

In [Month Year], you provided blood samples to ECL for measurement of specific perfluoroalkyl and polyfluoroalkyl substances (PFASs) (Part 1 below), and non-targeted analysis of potential polyfluorinated compounds (Part 2 below). These laboratory analyses have been completed, and your results are enclosed.

This mailing includes:

Part 1: Perfluoroalkyl and Polyfluoroalkyl Substances (PFASs) in Blood – This section includes a summary of your results for 37 PFASs. For comparison, we have provided summary PFAS results, when available, from the California Regional Exposure Study in Los Angeles County (CARE-LA), and the National Biomonitoring Program.[1]
Part 2: Potential Polyfluorinated Compounds in Blood – This section includes a graph of your non-targeted analysis results and a tentative identification of one potential polyfluorinated compound.

A fact sheet on PFASs, with information on sources, possible health concerns, and possible ways to reduce exposures, is also included for your reference.

If you have any questions about your results or need additional information, please feel free to contact Duyen Kauffman, Health Program Specialist at the Office of Environmental Health Hazard Assessment. You can reach her by telephone at (510) 301-0638.

Thank you again for your support of this pilot study. Your participation is helping us lay the foundation for measuring additional chemicals of concern in Californians.

Sincerely,

Myrto Petreas, PhD, MPH
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Branch Chief
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[1] The National Biomonitoring Program is implemented by the Centers for Disease Control and Prevention.

Perfluoroalkyl and Polyfluoroalkyl Substances (PFASs) in Blood

Perfluoroalkyl and polyfluoroalkyl substances (PFASs) are used to make various products resistant to oil, stains, grease, and water. These chemicals are very long lasting and have spread throughout the environment.

Did you find PFASs in my blood?

Yes. We found 19 PFASs in your blood. Your results are shown in the tables on the next two pages.

Are my results above the level of concern?

No state or federal agency has established a level of concern for any PFAS. Scientists are still studying how PFASs might affect people's health.

What can I compare my results to?

You can compare your PFASs results to participants in the CARE-LA Study. We found at least one PFAS in all 425 adults who had their blood tested for that study. The tables on the next two pages can be used to compare your results to:

- **Middle level in the CARE-LA Study.** Half the adults tested for CARE-LA had a result below this level, and half had a result above it.
- **95th percentile in the CARE-LA Study.** 95% of adults tested for CARE-LA had a result below this level, and 5% had a result above it.

You can also use the tables to compare your results to adults tested in the United States.[1]

- **Middle level in the U.S.** Half the adults tested in the U.S. had a result below this level, and half had a result above it.
- **95th percentile in the U.S.** 95% of adults tested in the U.S. had a result below this level, and 5% had a result above it.

The middle level and 95th percentile do not tell us anything about what level of PFASs in blood might be a health concern. We are providing this information so that you can compare your results to those of others.

The next two pages contain tables with your PFAS results.

[1] The values for adults tested in the U.S. come from CDC's National Biomonitoring Program. On the next page, we have listed the most recent national results for each PFAS (testing cycle 2011-2012, 2013-2014, or 2015-2016).

Your Lab Results for PFASs

PFAS tested	Your result	Middle level in CARE-LA	95th percentile in CARE-LA	Number of participants in CARE-LA with this PFAS found in their blood	Middle level in the U.S.	95th percentile in the U.S.
PFOA	5.17	1.13	3.06	422 of 425	1.67	4.27
PFHxS	4.39	0.68	2.33	420 of 425	1.30	5.00
PFOS	3.41	2.43	8.33	416 of 425	5.20	19.1
PFNA	0.94	0.32	0.92	413 of 425	0.60	1.90
PFPeA	0.73	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
PFUA	0.64	0.084	0.38	350 of 425	*	0.40
PFDeA	0.58	0.089	0.39	294 of 425	0.20	0.70
PFHpS	0.44	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
6:2 FTS	0.25	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
6:2 diPAP	0.083	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
PFHpA	0.071	0.027	0.096	223 of 425	*	0.10
PFBA	0.068	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
Me-PFOSA-AcOH	0.055	0.056	0.34	425 of 425	*	0.60
PFDoA	0.047	*	*	7 of 425	*	*
8:2 diPAP	0.033	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
PFPeS	0.029	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
Et-PFOSA-AcOH	0.025	*	0.046	133 of 425	*	0.11
PFOSA	0.022	*	0.048	108 of 425	*	*
PFBuS	0.017	*	*	21 of 425	*	*

Results for PFASs in blood are reported in micrograms per liter (µg/L) and are listed in the order of the level detected in your sample (highest to lowest).

*Value cannot be calculated, because this PFAS was not found in enough people in the U.S.

Your Lab Results for PFASs

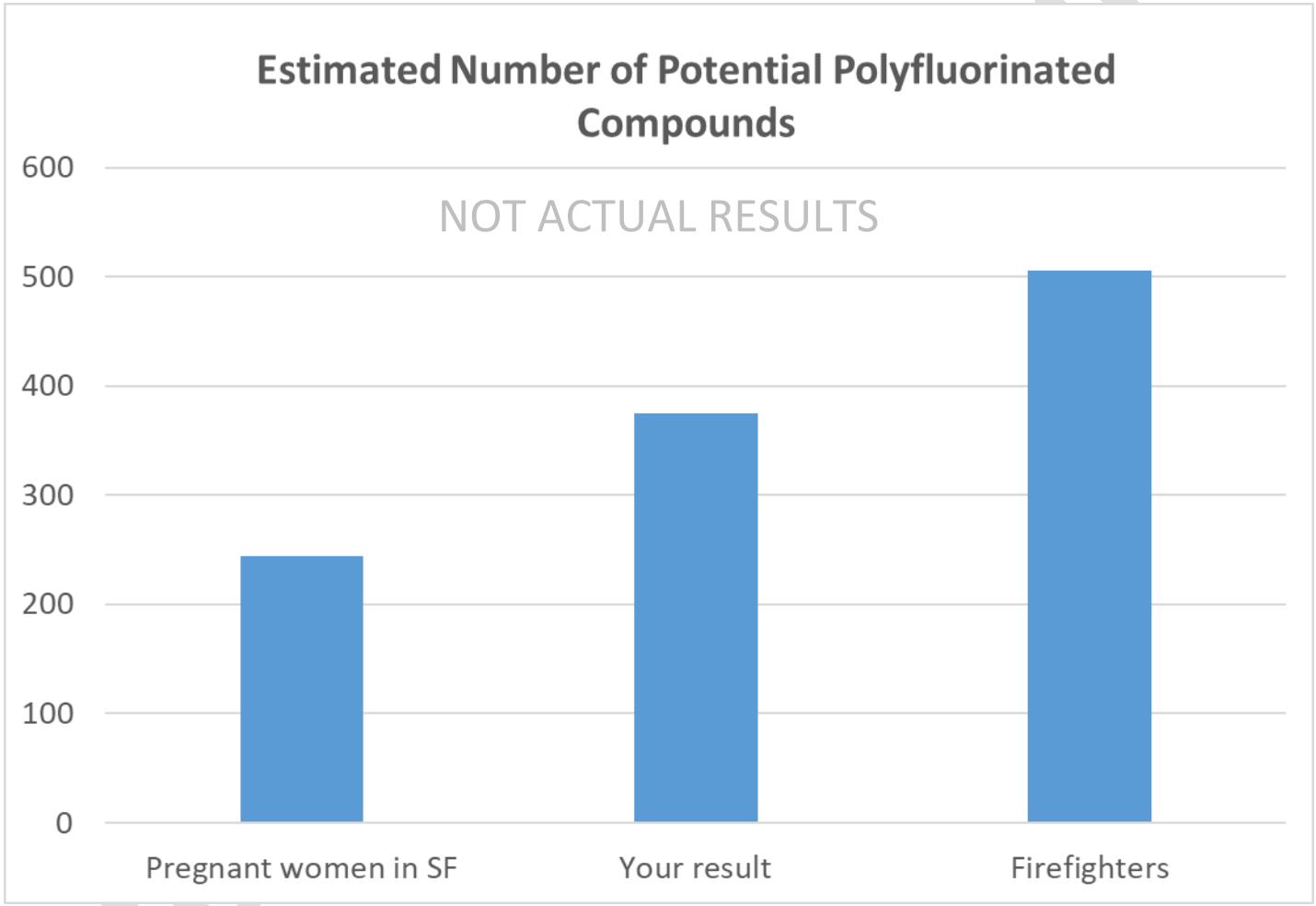
PFAS tested	Your result	Middle level in CARE-LA	95th percentile in CARE-LA	Number of participants in CARE-LA with this PFAS found in their blood	Middle level in the U.S.	95th percentile in the U.S.
PFDS	Not found	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
PFHxA	Not found	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
PFHxPA	Not found	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
PFNS	Not found	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
PFOPA	Not found	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
PFTeDA	Not found	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
5:3 FTCA	Not found	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
7:3 FTCA	Not found	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
6:2 FTCA	Not found	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
8:2 FTCA	Not found	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
6:2 FTUCA	Not found	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
8:2 FTUCA	Not found	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
4:2 FTS	Not found	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
8:2 FTS	Not found	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
8:2 PAP	Not found	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
6:6 PFPiA	Not found	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
6:8 PFPiA	Not found	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*
8:8 PFPiA	Not found	*Not measured*	*Not measured*	*Not measured*	*Not measured*	*Not measured*

Results for PFASs in blood are reported in micrograms per liter (µg/L) and are listed in the order of the level detected in your sample (highest to lowest).

*Value cannot be calculated, because this PFAS was not found in enough people in the U.S.

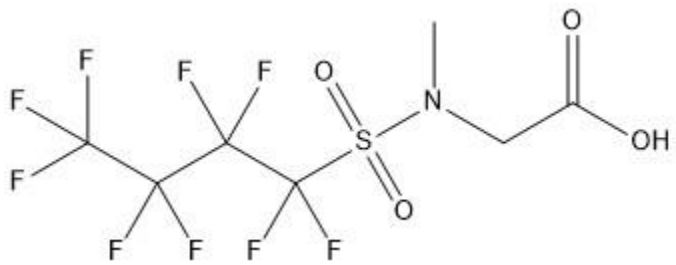
Potential Polyfluorinated Compounds in Blood

This graph shows the estimated number of potential polyfluorinated compounds we found in your blood, using a method called non-targeted analysis (NTA). You can compare your NTA result to estimated numbers of potential polyfluorinated compounds found in a group of pregnant women in San Francisco (SF), and several firefighters who were accidentally exposed to firefighting foam.



Potential Polyfluorinated Compounds in Blood

As part of the non-targeted analysis, we tentatively identified one of the potential polyfluorinated compounds in your blood as having the chemical formula $C_7H_6F_9NO_4S$. This could be a compound called N-methylperfluorobutane sulfonamidoacetic acid, commonly referred to as MeFBSAA. The structure of MeFBSAA is shown below.



MeFBSAA can be formed when certain fluorinated compounds, which are being used as replacements for phased-out PFASs, break down in the environment. This chemical has been found in the Tennessee River downstream from fluorochemical manufacturing facilities. MeFBSAA has also been found in water collected from landfills and is probably coming from discarded items, like clothing and paper products, that were treated with a PFAS.

The next page provides more information on PFASs.

Frequently Asked Questions about PFASs

Where are PFASs found?	• Some food, such as: – Some meat and seafood, because some PFASs in the environment can accumulate in animals, fish, and shellfish. – Some vegetables grown with water that contains PFASs. – Food in certain grease-repellent packaging, including some fast-food wrappers, microwave popcorn bags, take-out boxes, and cardboard containers for frozen foods. • Some textiles, such as stain-resistant carpets, water-repellent outdoor fabrics, and leather. • Certain stain- and water-repellent sprays; sealants for granite and other natural stone tiles or countertops; cleaning products; lubricants; polishes; and waxes. • Some personal care products, such as some skin creams, eye makeup, and dental floss. • Some nonstick cookware. • Drinking water sources affected by releases of PFASs into the environment.
What are possible health concerns?	Some PFASs: • May harm the fetus and child, including effects on growth and development. • May affect the immune system and liver function. • May increase the risk of thyroid disease. • May interfere with the body's natural hormones. • May increase cancer risk.
What are possible ways to reduce exposure?	• Include plenty of variety in your and your child's diet, and limit how often you eat foods in grease-repellent wrappers and containers. • Avoid products labeled as stain- or water-resistant, such as carpets, furniture, and clothing. • Check labels of household and personal care products, and avoid those with "fluoro" ingredients. Contact the manufacturer if you can't find the ingredients on the label. • If you choose to use protective sprays, sealants, polishes, waxes, or similar products, make sure you have enough ventilation and follow other safety precautions. • Because PFASs can come out of products and collect in dust: – Wash your and your child's hands often, especially before preparing or eating food. – Clean your floors regularly, using a wet mop or HEPA vacuum if possible, and use a damp cloth to dust.