NATIONAL ENVIRONMENT JUSTICE ADVISORY COUNCIL (NEJAC)

JUNE 2022 MEETING SUMMARY

VIRTUAL PUBLIC MEETING
JUNE 22 - 23, 2022

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PREFACE

The National Environmental Justice Advisory Council (NEJAC) is a federal advisory committee that was established by charter on September 30, 1993, to provide independent advice, consultation, and recommendations to the Administrator of the U.S. Environmental Protection Agency (EPA) on matters related to environmental justice.

As a federal advisory committee, NEJAC is governed by the Federal Advisory Committee Act (FACA) enacted on October 6, 1972. FACA provisions include the following requirements:

- Members must be selected and appointed by EPA.
- Members must attend and participate fully in meetings.
- Meetings must be open to the public, except as specified by the EPA Administrator.
- All meetings must be announced in the Federal Register.
- Public participation must be allowed at all public meetings.
- The public must be provided access to materials distributed during the meeting.
- Meeting minutes must be kept and made available to the public.
- A designated federal official (DFO) must be present at all meetings.
- The advisory committee must provide independent judgment that is not influenced by special interest groups.

EPA's Office of Environmental Justice (OEJ) maintains summary reports of all NEJAC meetings, which are available on the NEJAC website at *https://www.epa.gov/environmentaljustice/national-environmental-justice-advisory- council-meetings*. All meeting materials are posted in the public docket for this meeting. The public docket number for this meeting is EPA-HQ-OA-2022-0053. The public docket is accessible via www.regulations.gov under its docket number, EPA-HQ-OA-2022-0053.

Committee Members in Attendance

1. Sylvia Orduño, Chair, Michigan Welfare Rights Organization
2. Na'Taki Osborne Jelks, PhD, Vice-Chair, West Atlanta Watershed Alliance/Proctor Creek
3. Michael Tilchin, Vice-Chair, Jacobs Engineering
4. Jan Marie Fritz, PhD, C.C.S, University of Cincinnati
5. Jill Lindsey Harrison, PhD, University of Colorado Boulder
6. Benjamin J. Pauli, PhD, Kettering University
7. Sandra Whitehead, PhD, MPA, George Washington University
8. Rev. Dr. Ambrose Carroll, Sr., Green the Church
9. Leticia Colon de Mejias, Green ECO Warriors
10. Cemelli de Aztlan, La Mujer Obrera
11. Sofia Owen, JD, Environmental Justice Legal Services (EJLS)/Alternatives for Community & Environment (ACE)
12. Jerome Shabazz, JASTECH Development Services Inc. and Overbrook Environmental Education Center
13. Brenda Torres Barreto, San Juan Bay Estuary Program
14. Andy Kricun, U.S. Water Alliance
15. Ayako Nagano, JD, Common Vision
16. Jacqueline D. Shirley, MPH, Rural Community Assistance Corporation
17. Millie Piazza, PhD., Washington State Department of Ecology
18. Scott Clow, Ute Mountain Ute Tribe
19. John Doyle, Little Big Horn College
20. Jonathan Perry, Becenti Chapter, Navajo Nation

AGENDA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL ENVIRONMENTAL JUSTICE ADVISORY COUNCIL (NEJAC)
FULLY VIRTUAL PUBLIC MEETING
JUNE 22-23, 2022
1:00 P.M. – 6:00 P.M. EDT DAILY
PUBLIC DOCKET NO.
EPA-HQ-OA-2022-0053 at www.regulations.gov
NEJAC MEETING WEBS`ITE:
https://www.epa.gov/environmentaljustice/national-environmental-justice-advisory-council-meetings

DAY 1: WEDNESDAY June 22, 2022	
1:00 pm – 1:10 pm	**Welcome, Introductions, & Opening Remarks** ○ **Fred Jenkins Jr., PhD, Designated Federal Officer** – U.S. EPA ○ **Matthew Tejada, PhD, Director, Office of Environmental Justice (OEJ)** – U.S. EPA ○ **Sylvia Orduño, National Environmental Justice Advisory Council Chair** – Michigan Welfare Rights Organization ○ **Na'Taki Osborne Jelks, PhD, National Environmental Justice Advisory Council Vice Chair** – West Atlanta Watershed Alliance and Proctor Creek Stewardship Council ○ **Michael Tilchin, National Environmental Justice Advisory Council Vice Chair** – Jacobs Engineering
1:10 pm – 1:20 pm	**Welcome & EPA Updates** **Matthew Tejada, PhD, Director, Office of Environmental Justice** – U.S. EPA

DAY 1: WEDNESDAY June 22, 2022	
1:20 pm – 2:05 pm	**OEJ Consultation with NEJAC on EPA's Proposed Thriving Communities Technical Assistance Centers** ○ **Jacob Burney**, EJ Grants Program Manager – U.S. EPA
2:05 pm – 3:00 pm	**EPA PFAS Council Updates** ○ **Zach Schafer**, Senior Advisor to the Office of Water and EPA PFAS Council Representative – U.S. EPA
3:00 pm – 3:15 pm	**BREAK**
3:15 pm – 4:15 pm	**Special Community Voices Panel Session: Air Quality and Community Monitoring** ○ **Panel**: Preparing for Resilience and Equity with Accessible Community Technology (PREACT) Project in Philadelphia, PA. • **Christina Rosan, PhD**, Faculty Fellow at Temple University's Center for Sustainable Communities and Associate Professor of Geography and Urban Studies • **Megan Heckert, PhD**, Associate Professor, West Chester University • **Naida Montes, PhD** Candidate at Temple University and Community Organizer • **Russell Zerbo**, Advocate at Clean Air Council
4:15 pm – 5:55 pm	**PUBLIC COMMENT PERIOD** Members of the public will be given three (3) minutes to present comments on their issue or concern to the NEJAC.
5:55 pm – 6:00 pm	**CLOSING REMARKS & ADJOURN**

DAY 2: THURSDAY JUNE 23, 2022	
1:00 pm – 1: 05 pm	**WELCOME, INTRODUCTIONS, & DAY 1 RECAP & OPENING REMARKS** ○ **Fred Jenkins Jr., PhD, Designated Federal Officer** – U.S. EPA ○ **Matthew Tejada, PhD, Director, Office of Environmental Justice** – U.S. EPA ○ **Sylvia Orduño, National Environmental Justice Advisory Council Chair** – Michigan Welfare Rights Organization ○ **Na'Taki Osborne Jelks, PhD, National Environmental Justice Advisory Council Vice Chair** – West Atlanta Watershed Alliance and Proctor Creek Stewardship Council ○ **Michael Tilchin, National Environmental Justice Advisory Council Vice Chair** – Jacobs Engineering
1:05 pm – 1:30 pm	**WELCOME, EPA UPDATES, & DIALOGUE** ○ **Michael Regan, Administrator** – U.S EPA
1:30 pm – 3:30 pm	**NEJAC Business Meeting** ○ Discussion and Feedback on Proposed Thriving Communities Technical Assistance Centers Proposal ○ Finance and Investment Workgroup present and discuss proposed recommendations for consideration by NEJAC ○ PFAS Workgroup Discussion and Feedback
3:30 pm – 3:40 pm	**BREAK**

DAY 2: THURSDAY JUNE 23, 2022	
3:40 pm – 4:30 pm	**NEJAC BUSINESS MEETING (Cont'd)** **NEJAC Workgroup Updates** ○ Air Quality and Community Monitoring Workgroup ○ Water Infrastructure Workgroup ○ Farmworkers and Pesticide Workgroup ○ NEPA Workgroup
4:30 pm – 4:50 pm	**Announcements and Appreciations** ○ **Matthew Tejada, PhD, Director, Office of Environmental Justice** – U.S. EPA ○ **Sylvia Orduño, National Environmental Justice Advisory Council Chair** – Michigan Welfare Rights Organization
4:50 PM – 5:00 pm	**CLOSING REMARKS & ADJOURN**
Note: Please be advised that agenda times are approximate; when the discussion for one topic is completed, discussions for the next topic will begin. For further information, please contact the Designated Federal Officer for this meeting, Fred Jenkins Jr., PhD, at jenkins.fred@epa.gov.	

NATIONAL ENVIRONMENTAL JUSTICE ADVISORY COUNCIL
Virtual Public Meeting
June 22 – 23, 2022

MEETING SUMMARY

The National Environmental Justice Advisory Council convened via Zoom meeting on Wednesday, June 22 and Thursday, June 23, 2022. This summary covers NEJAC members' deliberations during the meeting and the discussions during the public comment period.

1.0 NEJAC Meeting

This section summarizes NEJAC members' deliberations during the two-day meeting, including action items, requests, and recommendations.

1.1 Welcome, Introductions, & Opening Remarks

Fred Jenkins, Designated Federal Officer (DFO), U.S. EPA, welcomed attendees and made announcements. He stated that everyone is in listen and view mode only, and public commenters are invited to speak later that afternoon. He stated that anyone who didn't get a chance to speak during the allotted time can submit their comment in writing to the NEJAC website by July 6, 2022. He noted that Spanish translation and closed captioning were available. He turned the meeting over to Matthew Tejada, the director of the Office of Environmental Justice, for opening remarks.

Dr. Matthew Tejada, Director, Office of Environmental Justice, U.S. EPA, informed everyone that this is Dr. Jenkins final meeting as the DFO. He thanked Dr. Jenkins for all the work he has done. He stated this will be a full meeting with discussions and decisions that will need to be made. He thanked the members for their time and dedication.

Sylvia Orduño welcomed everyone and thanked Dr. Jenkins for his hard work. **Michael Tilchin** informed her that quorum has been met. She thanked the Council for their dedication. She introduced herself and informed the Council of a new aspect of the meeting – a community voices panel.

Dr. Na'Taki Osborne Jelks introduced herself and thanked Dr. Jenkins and the members for their hard work. She also thanked the public for sharing their stories. **Vice-Chair Tilchin** also thanked Dr. Jenkins.

Chair Orduño invited the members to introduce themselves.

1.2 Welcome & EPA Updates

Dr. Tejada stated that the environmental justice (EJ) budget within EPA received a substantial increase in FY'22. This was following the $50 million that was received earlier with the

American Rescue Plan. That was for all EJ programs across the EPA. He stated that normally they receive $15 million every year. He stated that this increase will go directly to the EJ Grants program and the staff processing the grants. Their goal is to effectively spend that money. This allocation must be spent by the end of the FY'22, or it will be lost. Jacob Burney will speak to that program next. Dr. Tejada reminded everyone that the grant money goes toward EJ communities that have been chosen as a priority.

1.3 OEJ Consultation with NEJAC on EPA's Thriving Communities Technical Assistance Centers

1.3.1 Jacob Burney, EJ Grants Program Manager Office of Environmental Justice – U.S. EPA

Jacob Burney thanked everyone for sending feedback in terms of the tentative plans for the overall plan they have for the Thriving Communities Technical Assistance Centers as well as the traditional EJ grants programs.

Mr. Burney stated, again, that EPA received over $50 million going to EJ grants and technical assistance and must be spent by the end of FY'22. Some of the funds are allocated to EJ staff both regionally and within the EJ Grants program who will provide oversight and substantial involvement with the technical assistance providers, and direct oversight over the larger EJ capacity and implementation grants. There may be changes in how the connections and relationships are structured compared to what everyone's used to. He stated that there will be a dedicated EPA project officer for each individual EJ grant just because there are so many additional funds.

Mr. Burney explained the name change to the Thriving Communities Technical Assistance Centers. The network will work with many federal agencies, including United States Department of Housing and Urban Development (HUD), U.S. Department of Transportation (DOT), United States Department of Energy (DOE), United States Department of Agriculture (USDA), and others. Those agencies are already involved in the centers. He explained the overview of the centers. The centers will establish hubs to provide support for EJ equity issues, capacity building, grant writing training, and other kinds of training. These centers will be spread out across the U.S. The grants applications to establish those centers are due this summer. The centers may be grouped by region. Those centers would be financially supported even after FY'22. The regional EPA EJ staff will be lead liaisons working with centers, receiving cooperative agreements which would necessitate substantial involvement and oversight by EPA. EJ staff officer teams would meet with each center at least monthly, reviewing their structure, technical assistance to EJ communities, and outreach to remote areas.

Mr. Burney explained the reasons for the centers. Many stakeholders and members have shared this idea for years. The appropriation of funding from the Bipartisan Infrastructure Law finally came through. The current administration made this a priority to advance equity and environmental justice. Multiple agencies are interested in leveraging resources and coordinating efforts to maximize the value of the technical assistance programs.

Mr. Burney explained the goals of the centers. One is to meaningfully engage and collaborate

which focuses on those community-driven goals and needs and the ability to inform the decision-making process. Centers will proactively reach out to stakeholders and underserved communities about the services they provide and how to access them; provide a broad range of technical assistance; use of online tools and resources technology to facilitate access to information; and deploy community-based engagement activities to assess project progress and community needs, training, tools, and resources.

Mr. Burney explained the second goal which is interagency collaboration and coordination to provide federal, place-based commitments and pooling of resources; coordinate and leverage interagency technical assistance funding and resources to maximize the effectiveness of the program; and provide federal, place-based and regional commitments to include ground floor, low-capacity assistance opportunities and training, and interagency funding opportunities.

Mr. Burney explained the last goal which is community-centric collaborations. They provide TA to local communities and stakeholders, especially underserved communities, free of charge. They include counseling services for underserved communities on EJ, "how to" assistance in writing competitive grant proposals, financial resource grant management assistance, community engagement with other EJ partners, tracking and analyzing results, environmental justice analysis of communities (EJSCREEN analysis, on-the-ground problem site identification, and/or interviews of community residents detailing their EJ concerns), coordination and/or facilitation services for meetings between local stakeholders (community residents, local elected officials, port authority, industry, et cetera), translation and interpreting services for meaningful engagement with limited English speaking participants.

Mr. Burney explained the short-term outlook for the program. They are looking to release the Request for Applications (RFAs) by this summer. The eligible entities to serve as centers include public/private universities, larger nonprofits, and Intertribal Consortia. Eligible stakeholders to receive the services include underserved communities interested in EPA grant programs (nonprofits, grassroots organizations, and local and state government entities that are looking to engage in racial equity).

Mr. Burney explained the breakdown of the FY'22 budget. There was a slide showing the breakdown. He then explained the new implementation authority. Traditionally, the EJ grant activities were limited to research, demonstrations, and training and/or education activities. Now, EJ grant activities have been expanded to include implementation activities such as small-scale construction, refurbishment, mitigation of hazardous waste disposal, general clean-ups, and installations. OEJ will work with EPA media programs and the Office of General Counsel (OGC) to develop implementation project examples.

Mr. Burney explained the restructuring of EJ small grants and the sub-award model. Prior to this restructuring, it would take about nine months of back-and-forth paperwork for applicants to get approval for a grant. So now EPA would give the larger one or two entities $10 million each via cooperative agreements. They would then sub-award the funds to the grassroots organizations that need them the most. Communities will technically be subgrantees and will receive the funds through the Funder(s) instead of directly through EPA. Communities will submit reports and project updates to the funder(s). That change would alleviate a lot of the application burden on communities. Awards are capped at $100,000 for each one-year project.

Mr. Burney explained some of the concerns raised including the lack of an EPA project officer or EPA staff involvement to provide oversight and possibly perpetuating existing inequality and bias, lack of local connections, and a high percentage of funds going to the funder's overhead. He then explained how to address some of those concerns, including expediting the process, learning from the pilot program, evaluating historical grant recipients, setting a cap for overhead costs, and scoring applications by EPA staff.

Mr. Burney then explained the cooperative agreement programs. They will continue to be managed directly by EPA. Funds will at least double from FY'21 levels. Project periods will likely be increased to three to five years. Nonprofits, U.S. territories, states, local governments, and tribes will be eligible for them. They will be released by October or November 2022.

Mr. Burney stated that EPA is seeking feedback on the TA concept and the EJ Grants plan before releasing the TA Request for Applications in summer 2022. All suggestions and written feedback are tracked. He stated specific questions to shape the feedback.

Chair Orduño thanked Mr. Burney for the great presentation. It outlined what NEJAC has been wanting to see, but she felt overwhelmed by the new program. She asked if there is a difference between "centers" or "hubs" and if these are physical aspects or just online. **Mr. Burney** answered that they are synonymous, and they are more of a virtual presence, but there will also be physical locations. Chair Orduño invited members to ask questions or offer impressions. She reminded the members that during the business meeting is where more specific recommendations for additions or changes can be offered.

Jerome Shabazz thanked Mr. Burney for his presentation and applauded the idea of having physical places for applicants to go for their EJ needs. He asked whether or not there is an emphasis on where these centers need to be located respective to the clientele. **Mr. Burney** replied that EPA has strongly recommended MSIs or HBCUs to apply to be a center. They have a historic connection to underserved populations and communities. **Mr. Shabazz** rephrased his question. Is there anything written into this RFA that would require that larger entities partner with an actual community and affected neighborhood where those services might be overlooked? **Mr. Burney** replied that they would encourage those connections to be articulated explicitly in the RFA.

Vice-Chair Jelks asked, is there a particular definition around what a large non-profit is? In terms of the EJ Small Grants Program, if these various entities are TA providers, they're going to get about $100,000. She asked, does that mean that the EJ Small Grant award amounts will go back down to the $20 to $30,000 range? Does that mean that the TA providers will split that money into smaller grants beyond what their overhead might be? What's the difference in terms of money that goes to the TA facilities versus money directly to communities through the grant process? **Mr. Burney** replied that the funds for the TA centers, which are in the missions of dollars, are separate from the funds for small grants. TA centers aren't receiving just $100,000. Each hub will receive multiple millions of dollars to provide TA to certain EPA regions and localities. The small grants will be provided about ten million dollars overall to be subaward to grassroots organizations and small non-profits. There will be no other EPA small grants opportunity this year other than that larger subaward model. **Vice-Chair Jelks** asked what the

range is of funds for just the small grants. **Mr. Burney** answered that the cap is $100,000 for each sub-award grant.

Sofia Owen asked, how is "underserved community" being defined? She added she shared many of the concerns already mentioned and will address the rest of her concerns from his presentation tomorrow. **Mr. Burney** replied that the definition of underserved communities is the same definition that EJ Grants Program uses and is in the Racial Equity Order as well.

Ayako Nagano echoed what everyone said about the subgrants regarding concerns with non-profits still trying to hold anti-racist, equity work. She highly recommended looking at the historical record of those non-profits and if they are doing work with EJ organizations. She asked what the hook was to get the other federal agencies to work with the TA centers and who they are. **Mr. Burney** replied that the Thriving Communities network in the DOT appropriations is mandated to be involved serving underserved and overburdened populations. The agencies include DOT, DOE, USDA, HUD, and others.

Leticia Colon de Mejias asked how the two entities will be able to track in relation to ensuring the subgrantees are diverse? She recommended looking at the overhead costs of the entities to administer the grants and the application burden to subgrantees. She reminded everyone to be careful with acronyms during the meeting because there may be people listening who don't know what they are. She also recommended that all underserved communities are reached equitably. She stated that, with this new program, she wants to make sure to avoid repeating the historic, systemic, and racial exclusion of people. **Mr. Burney** agreed with her and explained the acronyms he used in his presentation. He will explain tomorrow how those large, managing entities can prevent having biases built into their selection process and ensure that the grant-writing burden is alleviated.

Chair Orduño stated her concern with so much crammed into such a short timeframe for this program and what that's going to mean for impacted communities who have to figure it all out to participate effectively. Being a competitive process just adds to the burden and anxiety to apply successfully. She asked if there was a way to be less competitive in spreading the wealth or lengthening the timeline to build in more opportunity for more groups, especially first-time applicants, and with more equity.

Andy Kricun stated that the program is terrific to get the resources where they are needed. He asked how they can make it more sustainable and embedded. He also asked about interfacing with compliance issues from industries and communities that need the help.

Chair Orduño stated that she looked forward to more of this conversation tomorrow. **Mr. Burney** stated that this year is a very unique situation because we have such a short timeframe. Don't take this timeframe as the standard. The EPA is looking to build more sustainability, flexibility, and time in terms of the grant programs.

1.4 EPA PFAS Council Updates

DFO Jenkins announced that the Assistant Administrator for the Office of Water was unable to attend and that, instead, the NEJAC would hear from Zachary Schafer, Senior

Advisor, Office of Water.

1.4.1 Zach Schafer, Senior Advisor, Office of Water, U.S. EPA

Zach Schafer introduced other members of his office staff who are attending the meeting: Jennifer McClain, Office of Groundwater and Drinking Water; Susan Burden, Office of Research and Development; Ava Azad, Federal Facilities Enforcement Office; Jeff Dawson, Office of Chemical Safety and Pollution Prevention; Matt Klasen, PFAS Council Manager. He gave an overview of his presentation which would include EPA's approach to the roadmap and recent progress for action in program areas. Mr. Schafer highlighted an important announcement last week of new drinking water health advisories for four PFAS and new grant funding from the Bipartisan Infrastructure Law. He added appreciation to the NEJAC PFAS workgroup for its help to guide ongoing PFAS work.

He stated that, in April 2021, Administrator Regan established the EPA Council on PFAS and charged it to develop a bold, strategic, and whole-of-EPA strategy to protect public health and the environment from the impacts of PFAS. The council is comprised of senior technical and policy leaders from across EPA's program offices and regions. He stated that the roadmap does several things: lays out EPA's whole-of-agency approach to tackling PFAS, sets clear timelines for concrete actions from 2021 to 2024, fills a critical gap in federal leadership, supports states' ongoing efforts to tackle PFAS, and builds on the administration's commitment to restore scientific integrity by making science the foundation of the work.

Mr. Schafer explained the background of PFAS and why there is such a concern about it. They are a large class of synthetic chemicals and have been used since the 1940s in homes, businesses, and industry in many consumer products. PFAS have been detected in soil, water, and air samples around the world and CDC surveys show most people in the U.S. have been exposed to it. Known or suspected toxins cause potential developmental, liver, immune, and thyroid effects. They don't break down in the environment or in the human body and have been designed to be durable, hence, their colloquial name as "forever chemicals." He explained the PFAS lifecycle and EPA's approach to the challenges in industrial and consumer applications. They include: (1) considering the lifecycle of PFAS and their many pathways for exposure, (2) getting upstream of the problem, (3) holding polluters accountable, (4) ensuring science-based decision-making, and (5) prioritizing the protection of disadvantaged communities with equitable access to solutions.

Mr. Schafer explained the three goals of the strategic roadmap include attacking the problem on multiple fronts at the same time. The first is research in understanding the exposures and toxicities, ecological effects, and effective interventions that incorporate the best-available science. The second is to restrict the polluters from releasing it into the air, land, and water. Lastly is to remediate or clean up the contamination to protect human health and ecological systems.

Mr. Schafer stated that the roadmap includes actions and timelines across all of EPA's major program offices. Those include the Office of Chemical Safety and Pollution Prevention with TSCA and the Toxics Release Inventory, the Office of Water with the Safe Drinking Water Act and the Clean Water Act, the Office of Land and Emergency Management with superfund, CERCLA and RCRA, the Office of Air and Radiation with the Clean Air Act, and the Office of

Research and Development.

Mr. Schafer explained the updates since last October. That includes EPA's actions to restrict PFAS, reduce PFAS in products purchased by the federal government, evaluate and develop technologies and methods for measuring and reducing PFAS in the environment, announce four PFAS health advisories and $1 billion in Bipartisan Infrastructure Law funding, and develop regulations to designate PFOS and PFOA as CERCLA hazardous substances.

Mr. Schafer stated that EPA has released four drinking water health advisories over a lifetime, particularly for the most sensitive populations, that can be used by states and water utilities to inform decisions on water quality monitoring and controls. He explained the context of the advisories. These advisories provide information on contaminants, are not enforceable and non-regulatory, and include treatment solutions. The interim advisories are based on epidemiological studies in populations exposed to the chemicals. EPA has information on its website regarding these advisories. The advisories are a step in the process to propose regulations later this year. In December 2021, EPA announced upcoming monitoring for 29 PFAS in drinking water. This set in motion EPA's gathering of data on PFAS and a new round of testing will include five times as many PFAS at many more water systems with methods that can detect at much lower levels. In December 2022, EPA plans to propose a national drinking water regulation. And in December 2023, EPA plans to finalize the regulation.

Mr. Schafer stated that EPA announced last week that, through the Bipartisan Infrastructure Law, the first $1 billion (of $5 billion) was released to be dedicated in grants to small or disadvantaged communities to address emerging contaminants in drinking water. He highlighted some of the cross-program actions including engagement and PFAS' impact on people's lives and livelihood, per a previous NEJAC recommendation. He reiterated their commitment to engaging directly with affected communities through a regional approach with EJ and disadvantaged communities, and a focus on tribal perspectives.

Chair Orduño thanked Mr. Schafer for the presentation and turned over the NEJAC discussion to the chairs of the PFAS Work Group, Dr. Pauli and Dr. Whitehead.

Benjamin Pauli stated that he appreciated the presentation and noted that the health advisories announcement was met with strong concerns by the water industry. The American Water Works Association statement said that the PFOS and PFOA advisory levels are extremely low and did not reflect the recommendations of the Science Advisory Board review. The amounts are basically undetectable by modern laboratory methods. He added that there are suggestions that the EPA is not following the science and that water utilities are concerned with feasibility, costs, and how the health advisories can become regulatory standards. Dr. Pauli asked how the PFAS Council can speak to potential gaps between what public health scientists and what water treatment and distributors say is possible. **Mr. Schafer** replied that the statement of concern didn't reflect what EPA is doing with these health advisories, which are the best available assessments. EPA believes the information they have was significant and that it was important to be transparent and inform the public and utilities about the significantly lower levels at which adverse health effects may occur. He stated that they are lower than the advisories that came out in 2016. He stated that EPA will change and set the final maximum contaminant level goal which is the purely health-based component of the regulation, but it will be below the level of

detection and the lowest possible for safe drinking water. **Mr. Pauli** realized that EPA would receive pressure from both sides in making the regulatory standard.

Sandra Whitehead thought this was a good way to set the stage for this discussion and invited NEJAC members to ask questions,

Ayako Nagano asked if there was any such thing as an end-user responsibility or extended producer responsibility. What are the barriers to holding the manufacturers responsible for their pollutants? **Mr. Schafer** replied that they are held under the superfund program and the rule that would allow OLEM to regulate PFOS and PFOA under the CERCLA, and which would allow impacted communities to recuperate costs of remediation from polluters. **Matthew Klason**, Office of Water, U.S. EPA, added that holding polluters accountable is a key principle of the roadmap and the administration is trying to get upstream of the problem and identify sources and take action there.

Chair Orduño stated that the presentation and discussion haven't mentioned what is being done specifically for EJ communities. She knows that there's a lot of testing going on, but what's happening to remediate the problem areas now in this roadmap by the Office of Water where there are multiple types of exposure and cumulative health impacts? People are drinking known contaminated water now, so how can they get safe drinking water now and how is the roadmap including emergency potable water needs. **Mr. Schafer** answered that due to time, current actions weren't included in the presentation. Sampling is a major component of identifying the worst polluted areas so they can build strategies and policy tools. There is no comprehensive, national sampling database yet to determine specific dynamics across EJ communities when levels and histories of exposure are unknown. EPA has already started working with companies to significantly reduce the amount of PFAS in their products and farmers on protecting their livestock and crops by reducing exposure, and FDA is working to phase out PFAS in food packaging. **Jennifer McLain**, Office of Water, U.S. EPA, added that the Emerging Contaminants Small and Disadvantaged Communities Grant is dedicated to small and disadvantaged communities under the law, and 25% of SRF funds are available to address the contamination and monitor more small systems.

Mr. Kricun asked if, similar to PCBs, there will be an effort for trackbacks, including the industrial pretreatment information, for sampling at pumping stations to identify high sources. Would they be working with brownfields when orphan sites are found? He stated that he's glad to see the funding for the wastewater treatment plant and drinking water upgrades, but is there a way to get win-wins with biosolids captured at the wastewater plants? Those biosolids capture a lot of the PFAS and PCBs, so to capture those may eliminate the contamination before it gets to wastewater and drinking water. He also asked if there was a way to incentivize utilities to do the upgrades and remove those solids or modify their operations. **Susan Burden**, Executive Lead, Office of Research and Development, U.S. EPA, stated that they are looking at existing treatment and destruction technologies and thinking about and evaluating how well they perform for PFAS contaminants, but the programmatic side of those questions are outside of the ORD. **Mr. Schafer** added EPA is using permits to identify companies that are using these chemicals to stop discharges where they are occurring. He invited everyone to ask follow-up questions directly to them due to time constraints in the meeting. **Sandra Whitehead** stated that the workgroup is excited about working on Roadmap 2.0.

DFO Jenkins thanked the presenters for their time and stated that he had received a link to an FDA article written about PFAS and will share it with the members and will include it in the public docket. **Chair Orduño** stated that this issue is very important to the Council. She then announced it was time for a break.

1.5 Special Community Voices Panel Session: Air Quality and Community Monitoring Proposed Panel: Preparing for Resilience and Equity with Accessible Community Technology (PREACT) Project in Philadelphia, PA.

Chair Orduño welcomed everyone back from the break. **Mr. Shabazz** introduced the next panelists. He explained the background behind having the community panel speak. His work group, Air Quality and Community Monitoring, invited this panel to speak to gather community perspectives about data management and interpretation, access to air quality monitoring, data anticipation with ARP grants, new techniques of how to monitor it, and having greater access for community relationships with technology. They have an app that promises to ensure three major outcomes: to enable and specify geographical interests for communities who need the information the most, to identify ways to systematically address vulnerabilities within those communities, and to ensure that data and data assumptions include the representation of the communities and the needs of the people by their lived experience.

1.5.1 Christina Rosan, PhD, Faculty Fellow, Temple University's Center for Sustainable Communities

Christina Rosan thanked the Council for the opportunity to speak. She informed the Council that this is an NSF Smart and Connected Cities planning grant. It's a year-long project built on many years of different projects that get to the fact that much of the data collected about environmental justice tend to live at a scale that doesn't reflect the lived experience. She stated that the app also brings together smaller projects into a larger, more strategic project data application.

Dr. Rosan said the app uses air quality monitors from different parts of Philadelphia, especially in areas that are the most affected by pollution to give a more real-time aspect of what's really happening in the air. She said when talking to communities about air quality, the people bring up other aspects of pollution that they feel need to be addressed, such as illegal dumping, health concerns, gentrification, and other issues.

Dr. Rosan gave an example of the app in action. There was a huge tire/junkyard fire near her neighborhood. She received an alert notification of the unsafe air conditions caused by the fire; however, the app didn't give recommendations for emergency or safety measures the people needed to take. She stated that the network is not robust enough, and more monitors are needed. She gave other examples of other opportunities for accessible community technology. Planning for environmental justice needs to consider the community's past, present, and how they see their future.

1.5.2 Naida Montes, PhD Candidate, Temple University and Community Organizer

Naida Montes stated that part of the work that her group has been doing has engaged communities on several levels. A community's perspective of the environment goes beyond just the land or greenspace; it includes issues such as violence, pollution, segregation, aging or vacant housing, and lack of resources.

Dr. Montes explained the comparison of extremes within Philadelphia. Her mostly minority community in North Philadelphia is only about five miles away from the Center City District. There is a 20-year difference in life expectancy between the two areas. She explained asthma rates also differ between communities. Urban heat islands exist in some areas and not others, but then there's pushback from residents about the trees that can lead to home or sidewalk damage despite a need for increasing tree canopies. Some parts of the city are over 20 degrees hotter than other parts. She showed the overlay of urban heat and gun violence, and where there's more urban heat, there's more gun violence.

1.5.3 Megan Heckert, PhD, Associate Professor, West Chester University

Megan Heckert stated that environmental justice demands an approach that is local, cumulative, and intersectional. She explained that Philadelphia has taken a "green" approach to deal with stormwater runoff and sewer overflows. It is called the Green City, Clean Waters program, and it was started about ten years ago. The program has found that there isn't enough public land within the city for this program to succeed if they "greened" everything. The water department has tried to incentivize and support green infrastructure from private/corporate entities. She explained that some green areas were well-received and were taken care of, and other areas became more dumping grounds. Some areas have little to no yards in order to put green space.

Dr. Heckert explained that the group put together a Green Infrastructure Equity Index, which tried to identify areas with the greatest need for green infrastructure based on 14 different indicators. There are three different categories of those indicators: environmental need, lack of amenities, and socio-economic vulnerability. She added you must also think about what's physically possible to put in a place for green infrastructure and how it will be received differently by a community. A lot of the indicators came from EJSCREEN in 2015.

1.5.4 Russell Zerbo, Advocate, Clean Air Council

Russell Zerbo explained that the city has tried adding amenities for tackling the hot weather health crisis such as opening pools, libraries, and rec centers with federal pollution policy. Mr. Zerbo explained that he and his co-presenters have published their findings, continued reviewing data, met with community groups, and worked with EPA every step of the way. He stated that his group set up air monitors around the city, focusing on specific areas around industrial areas. This monitoring led to a two-year grant to continue monitoring the areas. The EPA subsequently offered blood lead testing and soil led testing. He shared an example of monitoring around a huge scrapyard fire. The federal PM2.5 standard is 12 micrograms per meter cubed, and the readings showed over 2000.

Mr. Zerbo shared an example of a redevelopment of affordable housing with an underground parking area in an area called the Triangle lot. That lot used to be an old industrial factory that used to make watch casings and leather shoes, meaning the ground is most likely contaminated.

Monitors will be set up to watch for airborne and soil pollution as construction begins, including monitoring at an adjacent recreational center for kids.

Mr. Zerbo stated that he works with the city's air management services to help people make air pollution complaints. He tracks all the different complaints that come in from people in the city, mostly illegal dumping.

Dr. Rosan explained that, with the program, there are a lot of community impacts. They're also trying to build a tool that allows community members to make these complaints and to identify opportunities in their communities for climate investments that help them be more resilient, including advocacy, education around solutions, and conversations. She shared some questions that guided the project.

Chair Orduño offered her appreciation for the presentation and invited Mr. Shabazz and other members to ask questions and/or make comments. **Mr. Shabazz** thanked the presenters for their presentation. He asked them to speak about some of their challenges with the program. **Dr. Rosan** answered that the city-level offices didn't trust the technology and data of the monitors, and they had to figure out how to connect the local monitor data to the city's data. **Dr. Jelks** asked about the community's role in co-creating this project and the various tools they are using. **Mr. Zerbo** answered that his group had gotten a grant to work with a local EJ group to host three workshops to address concerns and then install a few monitors. They had one workshop, and then COVID hit. Suddenly, this large coalition came and met with his group, and they had many virtual meetings. Now, many of the people in that coalition are part of his program and help with the deployment and monitoring of the sensors. **Dr. Montes** added that it really helped to have the community involved so the academics and policy people get a true picture of real life in these neighborhoods.

Mr. Shabazz said there was a follow-up question about whether or not these community groups were able to get funding to remediate some of their concerns. **Dr. Heckert** replied that there was a grant whose goal is to develop a grant proposal. Most of the money is going to groups, some of the money is funding students, and the rest is going to community participants. **Dr. Rosan** added that was very difficult just to get community people to come to the meetings. They had to build trust with the community by writing articles and being face-forward. The key challenge is the lack of trust where there's illegal dumping, and people don't trust the government.

Ms. Owen stated that she will correspond with their group to get more ideas offline. She asked about the extent of the discussions at the state level with the need for stronger air quality standards to get to those improvements that are needed. **Mr. Zerbo** replied that Philadelphia has its own air management services.

Ms. Colon de Mejias commended the passion and vision of their program. She delineated the fact that all things are connected which she feels is the crux of environmental work. She liked the idea of long-term maintenance of projects and the idea of demystifying the fact that people in communities should have options and choices on impacts, and those projects should lead to additional opportunities for those at-risk environmental justice communities. She asked if there was a workforce component involved in those areas. Were they local workers, got paid decent rates, and was it a diverse workforce? She added that involving the community made a bigger

impactful result with their programs instead of the government running it. **Dr. Rosan** clarified that they are really still in the thinking and tool development stage in making these ideas come to fruition and how to help people see the benefits of these investments and how they can help the neighborhood in various ways.

Chair Orduño asked how they are promoting green spaces while also having other competing interests, such as developers who want to build something on any available land. She stated that, in Detroit, there were many home foreclosures and now they are vacant or demolished with a lack of funding for people to repair their houses, so now they have lots of green space and developers on overdrive who want to build everywhere. She asked how they can just keep the green space and stop developers from overbuilding while at the same time there's a need for more low income affordable housing. **Dr. Rosan** stated that the pace of gentrification in Philadelphia is staggering, so they need to have longer-term conversations about green gentrification and how to protect those neighborhoods and keep the green spaces and have affordable housing. **Mr. Zerbo** stated that he recently wrote an article about that subject.

Mr. Kricun suggested that adding a higher stormwater fee may discourage developers. Adding green infrastructure and not impervious surfaces helps the community. Have you met with PowerCorps? **Dr. Rosan** stated that her group just had a meeting with PowerCorps about this issue. Mr. Shabazz appreciated the panelists and closed the discussion.

Chair Orduño thanked the panel again and moved to the Public Comment period.

1.6 Public Comment Period

On June 22, 2022, the NEJAC held a public comment period to allow members of the public to discuss environmental justice concerns in their communities. A total of 13 individuals submitted verbal public comments to the NEJAC and an additional 31 individuals had signed up to speak but were not in attendance. Each speaker was allotted three minutes.

DFO Jenkins stated that the presentation slides and other material will be posted on the public docket. He reminded everyone of the procedures for the Public Comment Period. **Vice-Chair Tilchin** reminded members that, in the interest of time, no more than two comments are allowed per public speaker. If needed, the members can contact the speaker after the meeting.

Nathan Park - Earthjustice, Washington, D.C.

Nathan Park: Good evening, everyone. My name is Nathan Park. I'm speaking on behalf of Earthjustice, a public interest environmental law organization working to protect people's health and the environment through the strength of our partnerships and the law. I appreciate the opportunity today to speak with you.

I'll be focusing my comments on the Justice40 Initiative. Earthjustice continues to work with our partners on ensuring that the historic IIJA funding levels for lead service line replacements are distributed equitably in line with the administration's Justice40 Initiative. And to ensure this happens and for the Biden administration to hold true on Justice40, EPA should do the following. First, ensure that funded programs will fully pay for lead service line replacements

without charging individual property owners. Second, EPA should clarify that drinking water state revolving fund dollars cannot be used to fund any partial lead service line replacements, which we know causes an increase of lead in drinking water. And finally, EPA should see through a strong science-based and health-protective Lead and Copper Rule provision.

In December 2021, the Biden EPA allowed the Trump Lead and Copper Rule revisions to go into effect, which significantly weakens the rule by setting up weak voluntary testing programs at schools and childcare centers narrowing the definition of lead service lines and permitting over 90 percent of all water systems to avoid lead service line replacement. A new LCR must require all lead service lines to be removed in ten years and strengthening the LCR will allow the Biden administration and state and local water agencies to identify and ensure service line replacement.

I'm additionally glad to see the administration's update last week announcing that HUD has made available $500 million for states and local governments to address lead-based paint hazards. Earthjustice supports the administration's commitment to targeting these dollars towards disadvantaged communities in line with Justice40. However, under HUD's Section 8 public housing protocols, there's no requirement for tenant-based, Section 8 housing units to be inspected for lead hazards at any time, not even upon turnover.

Additionally, although there are disclosure requirements, they are not effective and inspection requirements will ensure that tenants have needed information about lead in housing. This means that in public housing built before 1978, when lead paint was banned, many lead hazards are going unidentified. And with no hazards being identified, these units will not receive any of the $500 million that HUD has made available to remediate actively leaving people and children in public housing at risk if they are not already suffering from lead poisoning. And we know folks that live in Section 8 housing are disproportionately affected by a wide range of environmental and health hazards, so ensuring these federal dollars reach them should be central to the administration's Justice40 work.

So, EPA should join HUD in its repeated calls to Congress for a mandate to inspect Section 8 public housing for lead hazards. And I see that I'm out of time, so I'll stop there and can follow up with the rest of my comments online.

Dr. Tejada invited other members to ask questions and/or make comments to Mr. Park. **Chair Orduño** stated that the Water Infrastructure Workgroup is very much interested in these issues and is working to promote remediation. She asked where the partial replacement lines are taking place. **Mr. Park** replied that he can connect her to the folks in Earthjustice who are focusing on lead service line replacement.

Adriane Busby - Friends of the Earth (Washington, D.C.)

Adriane Busby: Good afternoon and thank you all for your hard work and this opportunity to speak with you today. I am Adriane Busby, the senior Food and Climate Policy analyst with Friends of the Earth. Today, I'd like to recommend meaningful investment in research and monitoring in communities located near concentrated animal feeding operations, also known as CAFOs or factory farms.

Each year today's industrial-scale farms generate as much as one billion tons of manure. Up to 20 times more waste than humans, but at least human waste is treated. This waste, which is not treated, can contain pathogens and antibiotic-resistant bacteria, and groundwater can be contaminated by CAFOs through runoff from land applications, leaching from manure that has been improperly spread on land and through leaks or breaks in storage and containment units.

Factory farm pollution can contribute not only to respiratory ailments in nearby residents but also decrease quality of life, mental stress, and serious health effects. These communities, which are disproportionately communities of color or low-wealth communities, often have compounded exposure to risk due to historic but lingering contamination while also being targeted for new industrial development. These same communities often see little in pollution reduction investment despite EPA's full-on knowledge of the dangers they face.

Friends of the Earth ask that NEJAC recommends that EPA fund direct long-term water and air quality monitoring for communities located near CAFOs, including sample collection, access to laboratories, lab costs, and experts for data analysis, so that the burden to collect this information is not put on the communities that are already overburdened with life's existing demands.

Next, we think that EPA should support timely notice to communities when CAFOs are planned for their communities and have a meaningful opportunity to object as well as education on the pollutants these operations release and potential risk associated with public health. We also recommend supporting research for sustainable alternatives to waste lagoons that are not vulnerable to breaches and that protect local communities and resources from contamination. We think that EPA needs to create an engagement plan to deeply solicit EJ community input to guide the development and implementation of additional policy solutions to factory farm pollution, including but not limited to hosting a series of region EJ listening sessions, prioritizing Regions 3, 4, 7, and 9 on environmental and public health impacts of CAFOs culminating in a national listening session on the issue. In the interest of time, I will stop there, but I thank you all for your time and consideration. Thank you very much.

Vice-Chair Tilchin thanked her for her testimony. He stated that he is glad that she included potential solutions. He invited other members to ask questions and/or make comments directed toward Ms. Busby. **Dr. Jill Harrison** asked if Ms. Busby could be more specific on the types of air quality monitoring data that would be useful to her and her community partners. **Ms. Busby** replied that Friends of the Earth is not specifically an EJ organization, but they do work with EJ frontline communities to get an idea of what they feel is the best policy solution and ways to support them going forward. What she has heard, depending on the time of day or when operations are running, is that they release these emissions, such as ammonia. It really does require constant monitoring, long-term monitoring because certain levels during the day do fluctuate over time.

So, when we're talking about air monitoring, we're wanting to make sure that we're getting consistent information from several points that are around these facilities, most likely within a three-mile radius, because these are the locations that are most impacted in terms of continuous emissions and sustained exposure. So, what she's hearing from some of the community members is that, while impacted communities and front-line organizations really do have the drive to dedicate to monitoring and collecting this information, over time, they simply just don't have the

capacity to both live their lives and combat a lot of the challenges that they are already dealing with on a daily basis. Then they have to continue to gather the sort of data that EPA says is needed to either complete emission estimating methodologies or to get a real sense of the harm that these communities are exposed to.

And so, what she would recommend and what she's been recommending to EPA's Office of Environmental Justice and others is to talk to the communities themselves. She's been setting up meetings with whoever at EPA would like to talk to frontline communities. She's done this with the Office of Environmental Justice. They've had a meeting with a senior advisor, Robin Morris Collin, on this issue as well. And so, she really believes that it's not up to her or Friends of the Earth or other organizations that do not necessarily specialize in environmental justice to say what these organizations or what these communities need. And so, she would put forth that NEJAC continues to make meaningful connections and take opportunities to connect frontline organizations so that they can tell you exactly their experiences as well as what they need on a regular basis. Thank you.

Dr. Victor Perez - University of Delaware

Dr. Victor Perez: I wanted to thank everyone at NEJAC for giving me the opportunity to talk today. My name is Dr. Victor Perez. I'm an associate professor of sociology at the University of Delaware and an environmental justice researcher, and I'm speaking on behalf of the residents of a community called Southbridge in South Wilmington, Delaware; the Southbridge Civic Association; and I'm also speaking as the interim chair of the Southbridge Neighborhood Action Plan's Environmental Committee.

The core of Southbridge is a small community of about 1,400 people, working class, with a significant number of folks who fall below the poverty threshold. A little bit over 80 percent are African American, and they've been involved in community-based efforts in trying to address a variety of environmental justice issues for a long time that has always been sort of intertwined with development in the area. So, this evening, I'm going to be providing some feedback that I got from some community members at a recent civic association meeting regarding environmental justice issues that are important to them, including flooding.

To quote one of the community members, "Everyone has a flooding story," and the flooding has to do with a lack of adequate maintenance of the infrastructure but also because of just a long-standing sort of problem with the ability to handle the water that happens in South Wilmington due to the Christina River and the Delaware Bay itself. The brownfields in the community, there are over 36 of them. Mosquitos and standing water in the community are problematic.

It is understood as an asthma cluster as well as a cancer cluster by community members. It is a food desert. Recently, a South Wilmington wetland park, which is being developed by the City of Wilmington, will only address about half of the flooding that the community currently deals with. There has to be help for environmental justice problems before new negative environmental justice issues come about caused by a development called Riverfront East, which is in a lot of ways really providing the potential for green and resilient gentrification with a lack of affordable housing. The community wishes to own its future and not be displaced.

Folks also talked about basic needs like laundromats; as well as a mulch company and playing children by the mulch company which has health and physical safety concerns; as well as a lack of a variety of encapsulated soils all over including construction sites that has mounds of dirt with glass and hazardous materials; as well as brownfields, particularly near where children play in parks. Thank you very much for the opportunity to speak today.

Vice-Chair Tilchin invited other members to ask questions and/or make comments. **Mr. Kricun** asked if there is anything that can be done? Are they working with DNREC or EPA Region 3 to try to mitigate these other EJ burdens? **Dr. Perez** replied that one of the primary ways to do that is to address some of the existing brownfields in the area. There's development that's happening and is serving to try and mitigate a lot of the environmental justice issues in the area, but it's development driven. So, when those mitigation mechanisms are put into place, they're generally done in line with what it means for the future of development in the area. So, cleaning up our brownfields, for example, to the west of the community of Southbridge in Riverfront East means cleaning up a brownfield and then developing it for people who do not live in that community.

So, I would suggest that there need to be mechanisms that can help address the environmental issues that are in addition to or alternative to development-driven, mitigation efforts, so cleaning up brownfields for the sake of cleaning up brownfields or fixing flooding issues for the sake of fixing the flooding issues. So, for EPA, I think, there are a variety of issues that could be addressed including air pollution, soil pollution, groundwater, and contaminated groundwater. The problem is that the solutions are a long time coming and generally speaking -- and I'm speaking partly based on my observations as a community advocate for about ten years but also based on antidotes and research from community members. The changes tend to happen when the development happens, so the EPA can be very beneficial in providing alternative opportunities to clean up the area that don't involve necessarily the potential for displacement. **Mr. Kricun** suggested that NEJAC reach out to Dr. Perez and try to connect him with EPA Region 3, and they can look at how Wilmington is being treated.

John Mueller - Private citizen (Tulsa, Oklahoma)

John Mueller: Good afternoon. Greetings ahead from Tulsa, Oklahoma. I am John Mueller, a retired engineer, mainly in water resources engineering with a degree in geophysical engineering from the Colorado School of Mines. I am again presenting concerns about water fluoridation, but before going any further, I want to acknowledge and thank the NEJAC members for responding to these concerns presented during previous NEJAC public meetings by myself and others. Also thank you, Matt Tejada, for answering my questions in your NEJAC community engagement calls.

My comment today is largely spontaneous in response to Mr. Schafer's presentation on the PFAS and PFOA contamination chemicals. We all know, or we should know, that the F in those organic chemicals is the fluoride atoms covalently bonded to the carbon atoms in those compounds. What makes them the "forever chemicals" that they are is the strong bond which Wikipedia tells us is one of the strongest single bonds in chemistry and is "the strong inorganic chemistry". One reason is that fluorine has the strongest electro negativity and attractive force of any element in the periodic table of the elements. It's the same fluorine atom that helps give

prescription drugs like Prozac and Lipitor their efficacies. In its ionic form, it is deliberately added to public water supplies and is increasingly recognized by emerging scientific studies as being harmful to human health, affecting some of the same organs in our bodies as the PFAS and the PFOA compounds not only in environmental justice communities but harm to the developing brains of the unborn fetus in pregnant mothers of infants from formula reconstituted with fluoridated water and young children swallowing fluoridated toothpaste.

Fluoride is a developmental neurotoxicant, like lead, and it's added as a medical treatment to help prevent tooth decay with no control of human exposure other than what is added to the tap water miles upstream. It is unethical with no informed consent from those who have no choice but to drink that water. Tooth decay can be prevented with better diet and oral hygiene. Early brain damage is, as we have heard, a horse of a different color. Accordingly, a specific NEJAC recommendation should be banning the deliberate addition of any fluoride chemical compound to public water supplies.

I will be submitting additional materials prepared by experts, including highly respected dentists. Thank you again for these unprecedented opportunities to contribute to improving public health in this still greatest of nations. Thank you again.

Vice-Chair Tilchin invited other members to ask questions and/or make comments. **Chair Orduño** thanked him for testifying again and helping her understand this issue. As she grew up, she was told to have all the fluoride they could get. She stated that people need to pay attention to this issue. She would like to follow up with him regarding the science around fluoride. **Mr. Shabazz** thanked him for keeping the issue on the radar.

Odette Wilkens - Wired Broadband, Inc. - (New York)

Odette Wilkens: Hello, everyone. I'm Odette Wilkens, president and general counsel of Wired Broadband, a non-profit whose mission is to educate the public about the need for fiberoptics deployment for broadband.

Radio frequency radiation, or RF radiation, from wireless infrastructure is a pollutant. That includes cell towers, base stations, 4G, 5G, rooftop antennas, and so-called smart meters. It's even documented by the telecom industry in their consumer product protection plans. For example, a brochure states that a "pollutant" means any contaminant including artificially produced electromagnetic fields, sound waves, microwaves, and all artificially produced non-ionizing radiation." That is radio frequency radiation, and it is also called electro-smog.

The telecom industry uses that definition to disclaim liability for personal injury claims. Major insurance companies will not cover personal injury from RF radiation. In fact, the EPA had recognized RF radiation as an environmental hazard back in the 1990s. As soon as it did, the EPA was defunded in that area, and its jurisdiction over that area was taken away. My question is when will the EPA reclaim jurisdiction over this area?

Those who have born with the burdens of electro-smog are those who are electromagnetically sensitive and EMS disabled. They have been the unrelenting subject of discrimination including digital discrimination and algorithmic bias to belittle and deny the debilitating physical injuries

of RF radiation exposure. The condition can include headaches, balance disorder, heart palpitations, tremors, tinnitus, hair loss, depression, skin problems including lesions, nausea, vomiting, and reproductive problems.

Their debilitation from such exposure has led to an inability to participate in normal activities or even work. Many of the EMS disabled were unaware of the dangers or gave them no credence until they became injured. In a survey, it was found that many lost their jobs as a result, including engineers, doctors, lawyers, and children. Children living close to a cell tower were vomiting in their beds. That community had a cell tower placed at the end of their block. Seventeen people got sick, and many who could afford to live elsewhere evacuated their homes, and it's still continuing in Pittsfield, Massachusetts.

RF radiation is invisible. It cannot be perceived with the naked eye or by smell, much like gas leaking from a stove. And therefore, it goes unnoticed until one develops symptoms or is injured by it. the EMS disabled have been unsuspecting victims of their injuries that have now become their disabilities. There is talk of reducing fuel combustion and greenhouse gases or decarbonization of our air and economy, but decarbonization cannot occur without the decarbonization of electro-smog. Any perceived benefits from reduced fuel combustion are likely to be offset by greenhouse gases from wireless infrastructure. Presenting these comments is an effort to make visible what has otherwise been invisible until now, the EMS disabled. It's important for the EPA to reclaim jurisdiction in evaluating the safety of RF radiation. Thank you.

Vice-Chair Tilchin invited other members to ask questions and/or make comments. **Chair Orduño** stated that she is glad Ms. Wilkens came back to speak. She asked if wireless monitors and meters have an impact on RF radiation. **Ms. Wilkens** responded that yes, absolutely. There is definitely the same consideration for smart meters. She personally knows people who have been very badly injured and permanently so neurologically because of where these smart meters are placed. Sometimes they're placed right on the other side of your bedroom or on the other side of your bed, and you don't even realize it until you are already damaged neurologically. People then have to evacuate and go to a place that has no electromagnetic radiation whatsoever, not wi-fi or anything.

Once you become severely injured, it's pretty much permanent. It's the same thing with cell phones, cell towers, all of that. It's using the same form of RF radiation, and many people have already been injured. There's a case right now in New York, and there's been a case in Pennsylvania, especially regarding smart meters. People are not being given the opportunity to opt out of smart meters without having to pay excessive fees and sometimes they're not given an opportunity to opt out at all. They would just prefer to keep their analog meters. **Chair Orduño** asked for a reference article to help the Council better understand how those health impacts are determined. **Ms. Wilkens** said she lives in New York, and she's receiving statements from people in New York who have been injured and continue to be injured by smart meters. There is a court paper relating to the Pennsylvania case that has a tremendous number of references including engineering and engineering reports and reports from scientists, which she can include in her written submissions, and that will give them a lot of information. **Chair Orduño** stated that those would be very helpful.

Mayra Reiter - Farmworker Justice (Washington, D.C.)

Mayra Reiter: Good afternoon. My name is Mayra Reiter. I'm project director for Occupational Safety and Health with Farmworker Justice. I would like to thank NEJAC for the opportunity to speak today on Agency investments as they relate to environmental justice.

Agricultural workers comprise one of the most disadvantaged communities in the U.S. Studies have shown that up to 80 percent of farmworker households experience food insecurity. The average income of a farmworker family is in the range of $25 to $30,000, and at least 20 percent of farmworker families find themselves below the federal poverty level.

2.4 million farm workers in the U.S. face significant health risks due to pesticide exposure which can result in both acute and chronic health effects that may include neurological damage, birth defects, learning disabilities, and other conditions.

Pesticide use is predicted to increase as climate change intensifies and agricultural pests expand their range and their numbers. For there are a number of investments EPA can make to help achieve greater environmental justice for the agricultural workers who produce the nation's food. The first of them is to dedicate resources to prioritizing the registration review of organophosphate pesticides, followed by the immediate cancelation of all uses that pose a concern. EPA was supposed to complete the registration reviews of these highly toxic pesticides via the statutory deadline of October 1st, 2022. But EPA has indicated that only 3 of the 15 organophosphate reviews will be completed by the deadline. And that research constraints are directly responsible for this delay. This means that farmworkers have to wait years for EPA to take action to fully address the risks posed by these pesticides unless they dedicate more resources to complete the registration periods.

EPA must also put resources toward developing a systematic review framework by which it can incorporate more scientifically sound, epidemiological, and long-term data to include pesticide human health risk assessments to ensure that these assessments are informed by real-world data. This framework should be peer reviewed by the National Academy of Sciences before its adoption.

In addition, more resources are needed to improve pesticide illness surveillance. Currently, the sensor pesticides program administered by NIOSH in partnership with EPA collects pesticide poisoning data but covers only ten states. This program needs to be expanded to more states prioritizing those with the greatest numbers of reports from workers. Without additional investments, it will be hard to access the full extent of the field poisonings caused by agricultural pesticides. This information is important for EPA to be able to properly perform its regulatory function.

Finally, reducing pesticide exposures among farmworkers is an environmental justice goal for EPA. Farmworker Justice asks EPA to direct more resources toward addressing pesticide exposures among these essential workers. Thank you.

Vice-Chair Tilchin thanked Ms. Reiter for the testimony of what farmworkers are facing, not just poverty and food insecurity, but with the poisons they touch every day. She described the problem and gave clear and succinct recommendations. It has been an issue for a very long time.

He invited other members to ask questions and/or make comments directed toward Ms. Reiter. **Jan Fritz** asked what EPA's response was to the delay. **Ms. Reiter** responded that at the moment, we have not had a satisfactory response, but EPA has agreed to meet with some of the farmworker advocacy groups to discuss the stage of the organophosphate pesticide reviews.

Mr. Kricun stated that he was disappointed that only 3 of the 15 reports will be finished by the October deadline. He wondered if NEJAC can write to EPA through the OEJ to try to encourage an acceleration of that. He also wondered if there was any mitigative type of measures that could be taken in the meantime to reduce the impact on farmworkers. Are there some things that could be at least somewhat partially mitigative to reduce the vulnerability that they currently have in parallel with the long-term full solution? **Ms. Reiter** answered that anything the NEJAC can do before EPA would be welcomed by the farmworker groups. To answer the second part of the question, there are things EPA can do. EPA doesn't need to wait until all of the reviews are completed to take interim mitigation measures. They have already identified some risks and concerns for these pesticides with respect to farmworkers. EPA has the authority to take action to ban those uses that they know pose risks of concern that cannot be otherwise mitigated, but so far, the Agency has not done so.

Mr. Kricun asked if she can let NEJAC know what those interim mitigative measures are so they can include them in the request to the EPA to try to accelerate action in order to protect vulnerable farmworkers. **Ms. Reiter** answered that yes, they will be happy to share that information with the committee. **Dr. Harrison** stated that NEJAC has a Farmworkers and Pesticides workgroup, and members of that workgroup are members of the farm working community. Those members are working with those communities to establish priorities for building a set of recommendations to be sent to the EPA. Any additional written comments will help inform those recommendations. She stated that organophosphates are absolutely their major concern.

Rashmi Joglekar - Earthjustice (Washington, D.C.)

Rashmi Joglekar: Hi, everyone. My name is Dr. Rashmi Joglekar. I am a staff scientist at Earthjustice and would like to thank you for providing the opportunity to speak today. I will also be focusing my comments on the upcoming registration reviews for organophosphate pesticides very closely aligned with the excellent comments that Mayra just delivered.

EPA is delaying the statutorily mandated review of the dangerous class of pesticides called organophosphate pesticides, or OPs, which is putting farmworkers, children, and families living near fields where OPs are used at serious risk and posing environmental justice concerns. EPA is statutorily required to complete the registration review for 18 OPs by October 1st of this year, as Mayra mentioned, to ensure that they are safe for use. However, EPA is illegally delaying this process to obtain unnecessary new scientific information from non-animal tests that EPA's own scientific experts have warned against using to evaluate the safety of OPs.

EPA's already aware of the decades of scientific research that shows that OPs are dangerous to human health. OPs are acutely neurotoxic meaning that people who are exposed over a short period of time can experience poisoning symptoms, like headaches, dizziness, vomiting, convulsions, and even respiratory failure. OPs are also linked to neurodevelopmental harm in

children. Dozens of published scientific studies over more than two decades have shown that exposure to extremely low levels of OPs during life can lead to irreversible harm to the developing brain, which can result in long-term effects like attention disorders, autism, and reduced IQ.

EPA's own draft risk assessments show that people face unacceptable risks from OPs including children and farmworkers which again raises serious environmental justice concerns. EPA's own risk assessments found that nearly all OPs pose risk to the general population from exposure to the diet, which includes food and drinking water. Infants and toddlers experience dangerous levels of dietary exposure from most OPs, and, for some, dietary exposures in children are over a hundred times higher than EPA's levels of concern.

Farmworkers who directly handle the pesticides face severe risks meaning that at least one-use scenario exceeds EPA's risk levels of concern by at least an order of magnitude. In some cases, that's even after factoring in maximum protective clothing or equipment and engineering controls. They also pose risk to bystanders or people who live near fields where pesticides are used and sprayed. Nationwide, OP use data indicates that many of the communities and areas with the highest aggregate OP usage are low-income communities of color.

Under EPA's proposed delay, the Agency will only meet the deadline for three of these dangerous pesticides, as Mayra has highlighted, and each year of delay puts children at risk of life-long developmental harm and puts farmworkers at risk of life-threatening OP exposures to the other 15. In addition to the recommendations that Mayra outlined, I'd like to specifically ask this Council today to issue a statement urging EPA to no longer delay the registration review of this dangerous class of pesticides and to cancel registration for uses of OPs that cause unreasonable harm to communities, farmworkers, and children. Thank you.

Vice-Chair Tilchin asked if she could clarify when she said, there are established levels of concern for either all of the 18 pesticides or some of them. Can she shed some light on what he called the regulatory status of what it means to have a level of concern? **Dr. Joglekar** explained that the risk levels of concern that she is referring to are levels that were established in the risk assessment process that EPA has conducted for 17 OPs. In the risk assessment process, they have scientifically determined the levels below which there are supposedly no risks to human health and above which there are acceptable risks to human health. So, in these risk evaluations, they essentially gauge how much OP exposure is occurring in people, and they compare that to the level of exposure that's associated with health harm. If they're above the risk level of concern, that means that people are exposed to OPs at levels that will pose risk to their health. What they found in these risk assessments is that for many of the uses of OPs for farmworkers, the exposures that they were experiencing were at least ten to a hundred times higher than that risk level of concern, which is the level at which you start to experience adverse health effects. So these are extremely dangerous levels of exposure that farmworkers are experiencing, and they have gone largely ignored by the Agency. These are literally their own findings from their own staff scientists, so it's very problematic.

Vice-Chair Tilchin invited other members to ask questions and/or make comments to Dr. Joglekar. **Dr. Harrison** asked Dr. Joglekar, in her written feedback, to include as much of that detail as possible, including the detail about EPA's own scientists' statements about what they

feel is sufficient and necessary for moving forward. **Dr. Joglekar** stated that she will submit them.

Kurd Ali announced that was the last of the public speakers. **Chair Orduño** suggested, since there was extra time, that they can hear from unregistered speakers. **Mr. Ali** answered yes.

Jane Williams - California Communities Against Toxics (California)

Jane Williams: Good afternoon, NEJAC members. Thank you so much for the opportunity to speak with you today. I have registered to talk. I am the executive director of California Communities Against Toxics. I want to talk to you today about municipal solid waste combustion.

EPA had a duty to promulgate rules on municipal solid waste combustion units, also known as garbage incinerators, in the early '90s. It was one of the first rules that the Agency issued under the Clean Air Act Amendments of 1990. The communities surrounding these incinerators, of which there are 57 facilities with 157 incinerators across the United States, have never actually been afforded the protection of the act because the rule was challenged in the federal court and then remanded by U.S. EPA. The rule is now 16 years overdue, and we are trying to get EPA to issue this rule as rapidly as possible to grant protections to the communities that host these municipal waste combustion units.

Many of these facilities, as I'm sure you must be aware, are in environmental justice communities. They're in highly industrialized areas of the United States, and many are very old; most of them are over 30 years old. So, I can really use all of the help that I can get from NEJAC and its members to encourage U.S. EPA to as quickly as possible promulgate new, more protective standards.

Many of these incinerators are actually concentrated in just a few states. Over half of the inventory are in six states that are Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, and Florida. It can't be that difficult of a problem when there's over half the inventory in just six states.

Since we promulgated the rules, we have learned so much more about the impacts of particular emissions, especially during this pandemic. We see the correlation between high levels of particulate matter and the COVID epidemiology on the ground. I can't emphasize enough how important it would be for EPA to take this time and hurry up and promulgate new standards that would not only reduce air toxics emissions in highly impacted communities but also particulate matter. So, thank you so much for listening to me today, and I hope that NEJAC can help us do something on this.

Vice-Chair Dr. Jelks asked Ms. Williams to clarify the timeframe for when the most recent rules have been promulgated around these municipal waste combustion units. **Ms. Williams** stated that the rules were promulgated in 2006, but the court ruled that they were not protective enough. So, the Agency took a remand, and it's just been sitting on them since that time. To actually answer the question, it has never been the case that the communities that host garbage burners have been protected by a rule that meets the Clean Air Act protective standards.

Vice-Chair Dr. Jelks invited other members to ask questions and/or make comments. **Ms. Owen** stated that Massachusetts is home to the oldest incinerator in the country, and six of the seven incinerators in her state are in or border on EJ populations, so she's very familiar with the issues that were testified. She asked that Ms. Williams submit her written comments so the Council can have further discussion and move the issue forward. **Ms. Colon de Mejias** commended Ms. Williams for bringing this issue forward because it is often overlooked. She encouraged Ms. Williams to submit her written comments because she lives in Connecticut and knows the concerns firsthand. It will be forwarded to the Air Quality workgroup.

Mr. Clow asked if these facilities are large enough to require a Title V permit or a minor source permit as far as the tonnage of emissions and the tonnage of toxic emissions that are on the NESHAP list of hazardous air pollutants? **Ms. Williams** responded, yes, actually Section 129 is a little bit different than Section 112 of the act, so all Section 129 facilities are required to get a Title V permit. The statistics I gave you are for the large municipal waste combustors. There's also a small municipal waste combustor, and then there's other solid waste incinerators that have municipal waste combustion units in them. The statistics I gave you are just for the large sources that are required to get Title V permits.

Mr. Kricun agreed with trying to impact the impact on EJ communities. He stated that he worked for many years in Camden where there's a trash incinerator for the whole county, which meets New Jersey's air permit emission requirements, but those requirements are just significantly less than the best available technology. The community has been asking the state for years to acquire this incinerator operator to put in a bag house to reduce particulates. But because they're not required to, they won't do it. So, if incinerators can't be eliminated altogether, they at least need to be required to do the best available technology, especially if they're within the range of a residential community. He stated that NEJAC should definitely support discussion with the Office of Air with regard to better regulation or even elimination of incinerators. **Vice-Chair Dr. Jelks** encouraged Ms. Williams to submit her written comments so that NEJAC can appropriately follow up within EPA and with the relevant workgroup. **Ms. Williams** stated that she will be happy to do that.

Mr. Ali reminded all speakers to speak slowly for the interpreters and the closed captioning.

Shaina Oliver - Private citizen (Colorado)

Shaina Oliver: I did register to comment, but I didn't hear my name called. I am a state coordinator with Moms Clean Air Force, Colorado chapter as well as working with EcoMadres engaging with communities organizing within the Latino community here in Colorado, focusing on environmental justice, bringing justice to all communities for all children to have access to clean air as well as to have a safe environment to live in. Moms Clean Air Force is a national organization of one million moms and dads united in fighting for our children's right to breathe clean air and have a safe environment to live in. Most importantly, I'm an indigenous mother of four, and we're tribal affiliates of the Navajo Nation. We are the descendants of the survivors of the genocide known as the Indian Removal Act, known to the Dine' as the Long Walk of the Navajo.

So, historic environmental racism has always been a historic mark on our first nation's tribes and communities, and it still continues that genocide today by these environmental laws and policies and regulations that have formed our communities and have formed our environmental injustice communities, such as here in Commerce City, Colorado where we have the Suncor refinery who are continuing to operate and harm community members where children are dying before their parents that have grown up in this community. This community cannot use their water for drinking or cooking, but they still bathe in this water.

The state public health and environment have tested the water for PFAS levels, and it's above the limits. I don't think there's any safe limits of PFAS in our water, which, in the state of Colorado, we just passed our House Bill 22-1345 pertaining to concerning measures to increase protection from PFAS chemicals. I would like to see the EPA take on these stronger initiatives to tackle PFAS nationally for all communities so that our children are not being victims to PFAS chemicals as well as the oil and gas that releases these PFAS wastes into our waterways through the Sand Creek River as well as the South Platte River. There is a community that uses dam water from these waterways for their community's drinking water.

There's just no safe limits of PFAS, and we shouldn't have lower limits. High limits of PFAS should not be even considered as safe limits. There is no safe limits of PFAS in our blood or in our house. We need to go by science-based research and as well as climate research by scientists to understand that we can no longer live with these contaminants in our air or our water. These facilities like the Suncor Refinery continue to violate our right to public health and the environment to be sustainable in a way that's safe for our children. These communities are impacted directly by Suncore and surrounding industries that contaminate our air and our water and our lands and continue the genocide through these environmental harms created through these loopholes we call policies, regulations, and laws that stem from the Indian Removal Act. That's why we need to address the past, present, and future in this way that we address the racism underlined in these industries as well as our structured government. So, thank you for letting me speak.

Vice-Chair Dr. Jelks stated that there's a lot that Ms. Oliver shared that will be discussed the next day. She invited other members to ask questions and/or make comments to Ms. Oliver. **Mr. Clow** stated that Ms. Oliver reached out to the staff at the Ute Mountain Ute Tribe also. He appreciated that she has reached out to the national level. **Ms. Oliver** stated that she forgot to mention that her community has been utilizing Boulder Air, which has been conducting the community's air research in the Commerce City area, particularly around the Suncor refinery, so they are online under Boulder Air.

Michelle Rutledge - Private citizen (Florida)

Michelle Rutledge: Good afternoon, everyone. Thank you so much for this opportunity, and I did register as well, but I'm not sure if my call dropping may have impacted that. I am a community member, and I would like to bring consideration towards rural, agricultural, and residential communities. My home is in north central Florida. My neighborhood is a historically African American neighborhood intact since the end of slavery. We have a very rich cultural history. For example, we have survivors of the Rosewood Massacre who relocated after that event in our area.

I wanted to, if possible, ask if there have been considerations in environmental justice in obtaining equity of siting land use and zoning. The panelist made a wonderful comment, I felt, as a community member about considerations of how cumulative impacts, such as what's nearby, like, are there good schools, and is there access to healthy foods? That resonated with me because I do feel that planning may be a way to begin addressing and attempting to achieve equity.

My community has been advocating for environmental justice and energy justice, but also as far as what developments are potentially proposed, how communities are engaged if communities are given an opportunity to be listened to. Being in a rural community, well water is something that many of my neighbors and I and our families use.

So, I just want to thank you for this opportunity to just kind of share some of the experiences of community members. Also, I'm not sure if this is the right forum, but if we're talking about J40 and funding, if there can be considerations on how that money can get directly to community groups who are on the ground, grassroots organizations trying to better their community, that would be awesome as well as that could be considered. So, thank you so much for your time.

Vice-Chair Jelks stated that zoning is a real challenge. Place matters and the challenge is that it is very contextual and local and subject to local policies and politics. Some places have no policies around zoning, especially restricting certain types of land uses in close proximity to where people live and recreate. She stated that it's important to remember that zoning is not just an issue in urban areas. She invited other members to ask questions and/or make comments to Ms. Rutledge. **Dr. Whitehead** stated that she worked for many years as a land use planner in Florida and worked directly with communities in the Gainesville area and in other parts of Florida working with the health department. She asked what county Ms. Rutledge lives in. **Ms. Rutledge** replied that she lives in Alachua County. **Dr. Whitehead** said she will get her some connections with advocacy groups and the environmental planner for Alachua County. **Ms. Rutledge** added that, as the panelist mentioned, are there parks and green spaces? That just resonated with her because, in rural areas, there's no sidewalks there, but we still have the need to protect these significant cultural areas from overplanning. The need to add places where children can play, and adults can even exercise safely.

Mr. Kricun stated that it's important to be aware of zoning and to protect against cumulative impact because, in some cases, federal and state regulatory actions don't sufficiently protect those because the regulations aren't able to be as protective as we like. One of the things that occurs to him is that perhaps it might be helpful for the EPA and the NEJAC to work together on some sort of template ordinance to ensure that certain communities aren't overburdened or underserved.

Akisha Eaton - CARE

Akisha Eaton: Thank you so much and thank you to NEJAC for welcoming me into this forum. This is my first meeting, but I do anticipate coming to other public meetings. I did attempt to register, but I was under the impression that I might not be able to speak. I realize that we're kind of getting close to time, so I will keep my remarks very brief and follow up with further written

comments.

I work as the chief of policy in the Environmental Justice Division of CARE, which stands for Companions and Animals for Reform and Equity. We are a human and human well-being organization, and, to my knowledge, we're the first animal welfare-related non-profit with a division specifically dedicated toward environmental justice issues.

I just wanted to highlight and emphasize the importance of the human/animal relationship in the environmental justice context. I personally live in a disaster-impacted area. Following Hurricane Katrina, there were so many stories of people who did not evacuate because they had companion animals at home, and they didn't take advantage of those critical services that they would have needed to preserve their own lives and well-being. So, I just wanted to emphasize the importance of that relationship and interweaving that wherever it can be interweaved in terms of programming and applications for funding.

Just this past weekend, we happened to distribute free pools for companion animals of folks in the community who had been impacted by the heat wave. There are currently no cooling centers for folks to go to and certainly really many places that people can go to with their companion animals. The result of that is that a lot of people might just stay home and face heat stroke and other health-related impacts because that relationship hasn't been considered.

So those are just two examples. I do hope to follow up in more depth in writing, and I appreciate the opportunity to speak today and look forward to joining the forum in the future.

Vice-Chair Dr. Jelks stated that she hadn't really thought about this issue, but certainly, folks won't leave because of their pets. She looks forward to receiving the written comments for follow-up.

Kate Welty - Earthjustice

Kate Welty: I am a law clerk in the Toxic Health and Exposure Program at Earthjustice. I am here today to bring my concerns to the NEJAC about EPA's assessment of fenceline community risks under the Toxic Substances Control Act. I wanted to begin by thanking the NEJAC for its ongoing efforts and highlighting the harms to the fenceline communities surrounding facilities where toxic chemicals are manufactured, used, released, or disposed of or who otherwise experience greater exposures to harmful chemicals.

We urge the NEJAC to encourage EPA to follow this guidance and build out a more robust framework for the evaluation of future chemicals while also taking immediate steps to improve the fenceline assessments for chemicals that have already been evaluated. The TSCA risk evaluation process requires EPA to comprehensively evaluate a chemical's exposures and risk and determine whether the chemical substance presents or will present an unreasonable risk of injury. EPA must separately consider risks to potentially exposed or susceptible subpopulations, which are groups that due to either greater susceptibility or greater exposure may face greater risks of harm than the general population. These communities often face severe health risks as they are more likely to be dealing with stressors such as underlying health conditions, limited access to health care, and psychological stress related to poverty and structural racism that can

worsen the effects of chemical exposures.

Unfortunately, EPA's current fenceline assessment approach leads to an underestimation of chemical exposure and a corresponding underestimation of risk. The current methodology uses a chemical-by-chemical, facility-by-facility approach, ignoring the reality that fenceline community residents are exposed to multiple chemicals from multiple sources, many of which have cumulative effects.

EPA claims that it does not want to change its fenceline assessment approach to delay the regulation of the ten chemicals that have already been assessed and found to present an unreasonable risk. However, the choice between doing things quickly and doing things correctly is a false dichotomy. There are steps that the EPA can take now that will allow for the swift regulation of chemicals while also ensuring that fenceline assessments for those chemicals are more reflective of the community's actual exposures and risks.

We are asking the NEJAC to advise EPA to, first, incorporate immediate modifications for already assessed chemicals, including the use of existing air monitoring software to match the chemical load, the inclusion of at least five years of chemical release data to better understand estimated chemical exposures, the consideration of both pre-existing levels of contamination in fenceline communities, as well as peak emissions from nearby facilities, and the inclusion of an uncertainty factor to better represent unstudied cumulative impacts.

Secondly, we ask that you urge them to adopt broader changes to the fenceline assessment approach that can strengthen the risk evaluation process going forward, including the addition of cumulative risk analyses as outlined by the NEJAC in its own 2004 report addressing communities facing multiple stressors. Thank you all so much for your time and consideration.

Vice-Chair Jelks stated that the issue of underestimation of exposures is really important. Cumulative impacts don't necessarily just mean additive. There could be synergistic effects, such as making exposures worsened or exacerbated when people are exposed to multiple chemicals at the same time. She looks forward to receiving her written comments for follow-up. **Chair Orduño** stated that they have received multiple testimonies from fenceline communities, and the Council really needs to follow up on them in a prioritized way.

Marie Franklin (phonetic)

Marie Franklin: Thank you so much for getting me in. I'll make this brief. I'm a community organizer in East St. Louis (inaudible). We are an impoverished area that needs all the help that the EPA can give us. We have repeatedly ignored and looked over and cast aside. My question is, who do we talk to get these services that the EPA is offering? Is it NEJAC? Is that who we will start with? Who do we talk to get one of those technical assistance hubs here in East St. Louis where it would be most beneficial? Unfortunately, sometimes our cities' fathers are not aggressive enough of making sure that we get -- we need the assistance, so I'll just take it upon myself to do that.

I've been a life-long resident of East St. Louis, and our city, our citizens deserve to thrive just like the other citizens and (inaudible). How do we do that? We are working and learning. We

have people who can work. We have people who are smart. We have everything we would need gets if someone would just offer us the resources. Unfortunately, there are people talking about low-income communities. They talk about leveraging the poor instead of redistributing the wealth. We need the resources. We've got the brains. We've got the brawn.

Chair Orduño stated that they hear what she's saying, but there's terrible static noise, and the interpreters can't understand her. She clarified that Ms. Franklin wants her city to get one of these hubs. She hopes Ms. Franklin will listen to tomorrow's meeting to get information on the hubs program. Ms. Orduno encouraged Ms. Franklin to submit written comments because they need the comments to incorporate them into the work that they do. **Ms. Franklin** said she would.

1.7 Closing Remarks & Adjourn

DFO Jenkins thanked everyone for a very productive day. He adjourned the meeting for the day.

2.0 Welcome, Introductions, & Day 1 Recap & Opening Remarks

DFO Jenkins welcomed everyone back for Day 2 of the meeting and made the same announcements as the prior day. He invited the chairs and vice-chairs to introduce themselves. **Chair Orduño** explained the agenda for the day. **Vice-Chair Tilchin** announced that the quorum is met.

2.1 Welcome, EPA Updates, & Dialogue

Chair Orduño thanked Administrator Regan for speaking to the Council. She thanked him for his leadership and commitment he has made to the Council and environmental justice overall. She is excited to hear and understand more about how he is driving this EPA administration.

2.1.1 Michael Regan, Administrator – U.S. EPA

Michael Regan thanked the NEJAC for having him. He acknowledged that this will be a very promising year for EPA. 2022 marks the 30th year since EPA first formed the Office of Environmental Justice. He quoted the saying, "We've come a long way, but we have a long way yet to go." He's proud to say that the NEJAC has been alongside OEJ holding EPA accountable, lifting up the truth of the realities of communities on the ground and keeping them focused on the horizon where equity and justice are finally achieved.

Administrator Regan stated that the NEJAC has been busy with an assortment of priority actions, workgroups, engagements, and significant opportunities for providing him and this team with real-time feedback. EPA is still wrapping up the actions. Their strategic plans are now in the full throws of implementation. The infrastructure funding is starting to flow out of the Agency. The 2022 budget resources are getting ready to hit the streets. He knows the Council shares his commitment and the commitment of his entire leadership team for all of us to accomplish their goals. He appreciates the hard work of the entire staff.

Administrator Regan understands that the Council will finalize the recommendations and looks forward to receiving all of them. He believes they have such a historic opportunity to have the resources of the Infrastructure Bill at the same time that they're prioritizing Justice40 across so much of what they do. He acknowledged the enormous importance of the NEJAC as a federal advisory committee. EPA relies on their advice. The advice they give EPA today is needed now more than ever.

Administrator Regan stated that EPA's journey began when citizens demanded a clean environment and basic public health protections. They have been incredibly successful at delivering on those demands but not for all people and certainly not for all communities. That is why he is committed to delivering on the Agency's original promise for the communities most overburdened and vulnerable through our country's historic environmental injustices. That's part of why this time is so important. He stated that the Justice40 Initiative is a clear mandate to be laser-focused on delivering for communities who have suffered from generations of disinvestments because of structural and systemic racism and classism.

Administrator Regan stated that they're advancing equity across everything they do to close that disinvestment gap. They're doing the hard work of correcting from this time forward the structural and systemic injustices that still pose such a significant challenge to communities suffering disproportionately from levels of pollution. He said that's why he re-emphasized to his leadership team the need to stay ambitious on delivering right now for equity, justice, and civil rights.

Administrator Regan stated that this includes taking every opportunity to provide benefits directly to underserved communities and revising guidance documents that lie at the heart of their day-to-day work to ensure that EJ and civil rights compliance are included in that work. Baking environmental justice and civil rights compliance into the rules they write from the very first step and ensuring that all the engagement opportunities are fully accessible to persons with limited English proficiency and disabilities.

Administrator Regan announced that he's also glad and relieved to have some help to do that. He's glad to have Robin Collin as his senior EJ advisor, and he is relying very heavily on her to work across the leadership team to help ensure that they're meeting the mark of their shared ambition. They're so delighted to have Robin on board.

Administrator Regan stated that it was announced in April that the Agency had published the Equity Action Plan. The purpose of the plan was to fulfill President Biden's executive order directing the Agency, along with other federal agencies, to assess whether underserved communities and their members face systemic barriers and accessing benefits and opportunities through the federal government. He stated that this plan is a critical part of EPA's effort to break through those barriers and advance equity and justice across their efforts to ensure clean water, clean air, and clean land for all communities in this country.

Administrator Regan confirmed that they're clear in acknowledging the task. Some of EPA's past actions not only have failed to alleviate the challenges faced by many communities, but they at times exacerbated those challenges by increasing the disproportionate burdens born by so many

of our communities. He stated that to do a better job, now and in the future, he believes that they must recognize by lifting up this truth and confront it as they commit to doing things differently moving forward.

Administrator Regan stated that one critical element in that Equity Action Plan, as well as in their Agency's priority goal in the Strategic Plan, is to lay out a framework for considering cumulative impacts across the programs and their decisions. He said that Ms. Collin has personally taken leadership of this promise and is already working hard to make progress on this critical commitment. He said that he knows this will be another issue that the NEJAC will want to engage on, and he does not just welcome the input and advice, but they are all collectively seeking the Committee's advice.

Administrator Regan stated that when they look at correcting systemic injustices, the incorporation of cumulative impacts in their work will not solve all the issues, but it's absolutely critical to unlocking so much of their ability to make progress on the tough environmental and public health challenges facing communities with environmental justice concerns.

Administrator Regan spoke about the recent efforts, including EPA allocating historic amounts of grant funding to EJ and overburdened communities thanks to the American Rescue Plan, the Bipartisan Infrastructure Law, and their commitment to Justice40. Their grant-making will empower communities in ways that ensure their ability to protect themselves with the knowledge and the capacity that they deserve. This may be the most durable contribution to environmental justice in communities because, for the first time, they are funding community implementation of community projects. He stated that these grants are supported by President Biden's Bipartisan Infrastructure Law which invests more than $1.5 billion through EPA's brownfields program to advance EJ, spur economic revitalization, and create jobs by cleaning up contaminated, polluted, and brownfield properties.

Administrator Regan declared that he's proud to say that approximately 86 percent of the communities selected to receive funding for proposed projects are in historically underserved areas. That meets and exceeds Justice40. EPA's brownfields grants and other technical assistance programs are also helping to build the clean energy economy in the communities that need it the most. These are the actions that they're taking and will continue to take with the historic funds made available by the Infrastructure Law. He emphasized that they will make sure that these investments are durable, lasting contributions to the health of communities and the environment. They're driving those benefits to communities that need and deserve them the most.

Administrator Regan announced that they've set some ambitious goals for advancing equity, EJ, and civil rights, but they're also already delivering on many of those promises. They've already moved out in significant ways to start making their commitments a reality. It's more than lip service but letting their actions speak louder than words. He stated that they will continue to do this work at this pace during his tenure as administrator because he recognized it as their collective responsibility as EPA employees to ensure that they correct these injustices.

Administrator Regan stated that the injustice stories that he heard on the Journey to Justice Tour were born by communities for generations. They are unjust, unfair, and absolutely unbearable. This work is not academic to him or anyone; it's personal. He reiterated that it's about alleviating

those injustices for the people facing them today and about ensuring that their children and grandchildren can grow up thriving in communities that are safe, protected, healthy, and that provide them access to clean environments and green spaces, places that everyone will want to raise their own children in.

Administrator Regan acknowledged that none of that progress is meaningful if you can't see it. If it's not transparent to anyone, then it's abstract. He's committed to making sure that the progress is shown, felt, and real for the communities on the front lines who are facing these challenges. He said that he looks forward to their continued partnership to ensure that NEJAC's advice and recommendations and engagement with him and his team are consistent, utilized, and continue to aggressively push forward to advance equity, justice, and civil rights for the communities most overburdened and vulnerable to the country's historic environmental injustices. He invited members to ask questions and/or make comments.

Chair Orduño thanked the administrator for his remarks that touch on the issues they are concerned about. She appreciated him actually going into directly impacted communities to hear concerns from them. **Dr. Harrison** asked if he could explain more about the status of the cumulative impact assessment work that Robin Collin is leading. She also asked if he could explain how they plan on holding states accountable for their responsibilities for meeting their obligations in environmental justice and civil rights. **Administrator Regan** replied that he has given the regional administrators specific direction around how to incorporate EJ in community work. He and the regional administrators are in contact with the governors and environmental secretaries about the disproportionate impact on disadvantaged communities. His office is trying to home in on common themes that unite the definition of disadvantaged communities and being specific with the states on SRF and historical programs.

Administrator Regan stated that they are tying federal dollars with environmental justice and equity criteria. EPA is not afraid of putting pressure from the bottom up (press and community leaders) and top-down to support and empower these communities with resources. He also stated that he informed Congress that if states don't step in and act, EPA will use their authority to lean in and hold polluters accountable. We have demonstrated partnerships that if states can’t take action we will. But more importantly we’ve encouraged states to take action that they would not have otherwise. He noted that he's proud of the national program managers at EPA who are really tying criteria to the resources that are given to states.

Robin Collin, Senior Advisor, U.S. EPA, stated that they are working on a multipronged strategy beginning with robust science, and they have pushed science as far as they can to make sure that they are including the important aspects of the lived experience of the community. They are overlooking nothing. This is important to their approach to their partners, co-regulators, and other stakeholders in terms of an action agenda. It shows their willingness to be in the room to be able to deliver immediate relief to communities. She added that they are looking at all of the available law -- not pigeonholed or siloed -- that promises every community in this country clean air, water, and land. Those things don't require some new statute. They are pushing with every legal authority they have. They have a new legal tools document soon to be followed by the cumulative impacts document. She stated that she looks forward to their next meeting together.

Administrator Regan ended by saying everyone knows that cumulative impact and the legal

premise governing cumulative impact look different in all of their programs. It looks different in the superfund program versus the air program. They are looking at where there may be gaps. He emphasized that they could do more and will continue to do more to fill those gaps and make the necessary changes.

Cemelli de Aztlan stated that she lives in a border town in El Paso, Texas, and, because of that, data doesn't matter. The initiatives to collect data from air monitoring and the lack of the cumulative impact of the sources don't really matter. The border is basically a dumping ground. They are a frontline community but in a different sense because of Mexico. So far, the America Rescue Plan has included the expansion of the international bridges, but the investment needs to account for the construction, traffic, and air pollution from that but doesn't protect schools and children. They see a constant blaming of Mexico for all the border pollution but almost 70% of the industries in Ciudad Juarez are U.S. corporations. **Administrator Regan** replied that he has been working with DOT and Dept. of Education on those issues. He knows of American companies that go across the border and pollute Mexico because their regulations aren't as stringent as ours. Part of the Infrastructure Bill goes to those border towns. He hopes to meet with international counterparts on those issues with solutions and not just academic information. He added that the EPA has to take into consideration some of the areas and regions that they may not have given as much attention to in the past. He hoped the NEJAC will provide some constructive solutions to the EPA as he has solutions from the ground.

Mr. Shabazz asked if Mr. Regan has established some kind of report card or rubric by which they can measure how well the regions are functioning relative to administrating and carrying out the initiatives that Administrator Regan supports. What safeguards are enabling administratively that the regions will be in lock-step with the mandates and priorities of the administration? **Administrator Regan** stated that he is very proud of the initiatives and actions taken by regional administrators thus far as the implementors. There are national metrics that they are governed by, but he added that their metrics and NEJAC's metrics need to be matched in order for both sides to see the regions' successes. He added the EPA staff will walk the NEJAC through the metrics they have in place nationally and regionally to determine if that's the kind of measurement of progress that the Council is looking for and the administration may have to think about differently. The will power and the resources are there now we need to make sure we're all measuring and looking at this thing the same way as we're making progress.

Ms. Colon de Mejias asked about intentional steps to empower communities that have long been long under-resourced and not meaningfully engaged, such as educational-based approaches in planning, career opportunities, and closing the informational gap that exists in many frontline communities. **Administrator Regan** replied that the billions of dollars will go to grants in those areas. Examples are the no or low-cost loans and grants, instead of matching funds, for lead pipe replacement and the technology hubs that will be built. He added that this money will go to communities that have never seen federal resources before, and that will be a success. **Chair Orduño** thanked Administrator Regan for speaking today. **Administrator Regan** added that EPA is operating head and shoulders above the other federal counterparts because of the NEJAC.

2.2 NEJAC Business Meeting

Chair Orduño stated that they aren't going to provide any formal recommendations by way of a

letter at this time. They realized that the scope of the work that's taking place in the Finance and Investment Workgroup is still in progress as shown in the letter provided to the Council. They are joined today by Dr. Sacoby Wilson, co-chair of the Workgroup and former NEJAC member. Dr. Baptiste was not able to attend today. She reminded the Council that they received an email of the draft document with details and that the slides show the main points. The purpose of the letter is to ask the EPA what it is doing across the board and within programs areas to better define how it's providing investments and benefits to communities with EJ concerns. She started with Section 1 DEFINING Investments and Benefits in EJ Communities. She stated that the Council wants a clear understanding of how the EPA is defining investments and benefits, both direct and indirect. One of the initial recommendations is drafting "model" definitions that are co-created with communities and measure, both direct and indirect benefits within the Justice40 framework. She noted that they should include a co-creation of metrics with communities that face environmental injustices to determine the prioritization of benefits – both direct and indirect.

Chair Orduño also mentioned that another recommendation regarding definitions is on the matter of PFAS exposure; the EPA should develop key building blocks of the definition of PFAS exposure to include race for disadvantaged or underserved communities which can be a model for states, regions, and other federal agencies. She invited other members to ask questions and/or make comments. No hands were raised.

Ayako Nagano added that if they don't have clear, consistent definitions, then they won't have a clear, consistent application of the funding going to disadvantaged communities. She moved on to Section 2 PRIORITIZING Investments and Benefits in EJ communities. The NEJAC seeks to understand how the EPA prioritizes and centers the concerns and needs of communities experiencing EJ problems through financial investments and benefits. She stated that the NEJAC wants to know what the barriers and challenges experienced by some agency offices, and if programs are implementing and prioritizing environmental justice.

Ayako Nagano emphasized two main issues. One, how is equity utilized as a determinant in the EPA's prioritization of when, how, where, and why funding and investments are placed for environmental justice concerns? Secondly, among the EPA's six Justice40 pilot programs for implementation by the EPA in 2021, how were priorities established to determine where, when, and why finances and investments were placed to correct environmental problems in affected communities and to ensure equity? **Chair Orduño** invited other members to ask questions and/or make comments. No hands were raised.

Mr. Shabazz introduced Section 3 ASSESSING/DETERMINING and DISTRIBUTING Investments and Benefits in EJ communities. One of the primary concerns was to be certain that there is a very specific tool or model in place to identify the funding, how it's invested, what the technical supports look like, and to see that the funding is getting to the communities that need it the most. He stated that NEJAC recommends funding and investing in technical support to NGOs and CBOs, improving the depth of communication with frontline communities to provide adequate resources to address community concerns, increasing EPA environmental justice staffing capacity through direct funding and investments to assist with addressing EJ concerns, establishing and funding Regional Environmental Justice Advisory Councils (REJACs) for each EPA region, and funding an assessment of the utilization of the NEJAC's Model Plan for Public Participation (2000) in the EPA's determination and distribution of investments.

Chair Orduño added that NEJAC wants to ask EPA for a better understanding of the work that they've done so far in those six pilot areas to understand how it is that the assessment and the determination of the distribution of those funds were carried out through the program areas of EPA, specifically, for each region, how many communities were recipients, which groups were included, what changes occurred, and were those changes successful? She invited other members to ask questions and/or make comments.

Mr. Kricun stated that he sees three main categories of barriers to why underserved communities don't get funding. One is they may lack technical resources. The second is that some community groups may be at their debt limit or just lack funding. The third is some communities need basic services, and the local policymakers don't apply so the EPA needs to proactively go after them.

Dr. Sacoby Wilson, co-chair of the Finance and Investments Workgroup, added that NEJAC has requested REJACs for years. He also added that regional administrators need to use the EPA EJSCREEN and be able to click on their regional tool to get regional data. These tools track the indicators and snapshot programs and benefits. There needs to be a feedback in the regional tool so community members can give feedback on the indicators and the definition of benefits.

Dr. Wilson moved on to Section 4 MEASURING and TRACKING Direct Investments and Benefits in EJ communities. This is to understand the scope and flow of EPA direct and indirect funding, financing, and investments that communes with EJ issues. All programs should provide written documentation on the metrics that address direct and indirect investments and benefits. What measures were utilized to ensure intended targets receive direct benefits? He continued with the benefits should include social, economic, environmental, and health indicators.

Dr. Wilson spoke about how performance targets are measured, modified, and improved based on data and experience. He stated that some questions include, in which way does EPA include indirect benefits in its measurement of benefits? What are the metrics used to measure multiple or cumulative benefits with a variety of stakeholders? How are accountability and oversight for performance goals built into the EPA programs? What corrective actions will be undertaken if they are not achieved to ensure investments measurably lower burdens on EJ communities? How will the new OEJ tracking tool to measure investments and benefits allow for public engagement from EJ communities? What are the primary barriers and challenges to creating this tracking tool? What are the barriers and challenges to creating a system to track investments and benefits?

Chair Orduño acknowledged that this draft letter is very comprehensive, and the workgroup needs help on where the focus needs to be.

Ms. Colon de Mejias stated that she has noticed, nationally, that there is a lack of focus on the critical impacts of energy emissions, production, and distribution, and climate change which is directly related to that. Related to talking about benefits and impacts, she noted that specific information on the equity lens needs to be included. She and others developed a descriptive, distributed equity lens. Benefits include cumulative impacts, jobs, health, housing, resilience building, distribution of funding, and avoided harms like heat islands, flooding. She explained the distributive equity lens, and she put a link in the chat to access it. She noted that there aren't

many energy experts on the Council. She thinks that it is critical to discuss energy to ensure that whatever document measures energy benefits is inclusive of energy infrastructure. **Chair Orduño** asked Ms. Colon de Mejias to send those comments to the workgroup so they can be incorporated. **Ms. Colon de Mejias** noted that energy is connected to everything humans do, such as housing, playing, working, and just living.

Ms. Owen suggested that, whenever they're talking about funding, they should also include enforcement and compliance and about Title VI and civil rights overall in addition to environmental justice, especially with states. **Chair Orduño** suggested sending those thoughts to the workgroup. **Dr. Wilson** explained the long-term struggle with states getting money, not spending it correctly, and then it being sent back. He agreed with Ms. Colon de Mejias that most environmental justice issues stem from energy. He suggested looking at past NEJAC reports for ideas.

Ayako Nagano informed the Council that the Office of Water is coming out with a memo that says that they will be enforcing Title VI on the states. She added that the city of Oakland shared a tool they use that reviews every line item on the budget for equity in the EJ work. She recommended that NEJAC looks into a tool like that.

Mr. Shabazz added the EJSCREEN tool should include the energy part of measurement. **Chair Orduño** asked members on the Water Infrastructure Workgroup to give suggestions on the definitions. She also wants to hear more from territories and tribal lands to make sure their issues are also being addressed.

Vice-Chair Jelks added that the Water Infrastructure Workgroup discussed the definitions and metrics related to water. She emphasized benefits being codeveloped and marrying metrics with expectations recognized by the community. She also recommended that EJSCREEN be the floor for data sets and metrics and bringing in local data.

Mr. Clow mentioned that everything discussed so far has applied to tribal communities. He mentioned that the DOE funds a lot of energy projects for tribes, and the magnitude of the resources in Indian country to power this nation and the world is significant. He gave a few examples of win-win situations mentioned by Administrator Regan. He also mentioned that he hears a lot of negative feedback towards projects that could help due to concerns with capacity or ability that could also help with climate change innovation and intergenerationality; just try the idea and see if it works. **Chair Orduño** added her appreciation for Mr. Clow's hope, vision, inspiration, and out-of-the-box creativity that can be a positive contribution to the letter and that the NEJAC can champion.

Dr. Millicent Piazza wanted to underscore the importance of the terminology piece of the plan as someone who tries to operationalize this work from a state bureaucracy. For instance, the term historically underserved areas leads her to think about how that fits with mapping and how she justifies that among other terms. She echoed comments on who defines the benefits and how to connect investments and metrics to what the community benefits are and create accountability to those benefits. She echoed the comment that they shouldn't focus on guardrails, i.e., what they can't do but on what they can do. She recommended putting some language in the letter about participatory budgeting and what that looks like, particularly what it can look like with

accountability to community vision. She offered assistance in adding Title VI components to the letter.

Mr. Shabazz stated that accountability and co-production need to be defined as to what they look like and what social benefits looks like when community members participate in social projects. He suggested a prosperity index as well or a community benefits index, so people aren't focusing on what the problem but what it looks like when we do it right. For example, green infrastructure and water are managed by the local municipality and we treat it as ancillary but it's the primary aspect of the citizens involvement in what it looks like as a community benefit for everything from the aesthetics of a community to how people feel and more. A prosperity or co-benefits index should represent this. Jobs production programs should recognize this relationship such as Hopeworks, PowerCorps, Green Ambassadors. He suggested that EPA work on creating uniform guidance and training for citizen scientists and citizen participation, so the work and the monitoring are legitimate and official and their monitored work can end up on a portal like EJScreen. **Dr. Wilson** agreed with and praised the comments on the prosperity index.

Dr. Wilson moved on to Section 5 MAPPING and REPORTING Investments and Benefits in EJ communities. He added when we map things out we should be able to map healthy cities, healthy community systems, benefits that are tangible, the food-energy nexus and green infrastructure which get back to mitigation, adaptation, and resilience and getting equity in that. He explained the recommendations that all EPA programs should develop a clear and public method (similar to the EJ Screening tool) that provides data on where EPA funding is provided, distributed, used, and assessed; develop a visualization tool for funding to include mapping indicators in the ongoing development of this tool with provisions for longitudinal data; and, for capacity building centers, deepen the work on developing capacity building centers within marginalized communities to enable them to have local technical resources available for applications, including "ground floor" assistance.

Mr. Shabazz added an example regarding CEJST with the success of hiring local workers and using local contractors, local resources, and local contacts. **Chair Orduño** added that many local EJ groups had negative experiences with academic institutions and researchers that don't know the people and the community.

Jacqueline Shirley agreed with Mr. Clow's comment on the win-win and about deepening capacity development. She explained that the youth of today (in summer internship programs, AmeriCorps, and VISTA) will become the organizers of tomorrow. **Ms. Colon de Mejias** stated that yesterday's presentation proposed the funding will be distributed down seemed to take the same trickle down approach as it has been in the past, and she found it to be ineffective or else we wouldn't continue to have the same historic disparities in EJ communities that persist and expand. She recommended that there needs to be an indication that there's a critical need to stop the trickle-down approach from EPA to a large entity and switch to a "soaker hose" approach. The funding needs to go to the "root" of the problem which is in the communities. Governments tends to partner with known partners which are comfortable to make the investments because the people look like them, talk like them and willing to do surface work and research without directly engaging communities most at risk and harm. Those closest to the problem are closest to the solution when they are listened to and empowered. She noted that the EPA funding solution, as proposed by the new EJ Grants program, sounds extremely familiar and does not work. She

does not want to repeat the past funding issues.

Chair Orduño transitioned the discussion to the Thriving Communities hubs. She reviewed the presentation from the day before. **DFO Jenkins** reminded the Council that this program is not up for a vote; it was just a proposal consultation, and OEJ members are listening for feedback. **Chair Orduño** invited other members to ask questions and/or make comments.

Mr. Kricun stated that the proposal is a very positive thing to do. He stated that he is concerned with sustainability across administrations, ensuring that communities know about them and that these centers (not the government) give the assistance the communities deserve. **Chair Orduño** asked for clarification on exactly who the centers are for. **Mr. Kricun** replied that he hopes they are for everyone -- large groups and small groups. **Mr. Burney** answered that the hubs are for a wide range of stakeholders in a community from community groups to state governments. **Dr. Tejada** clarified that community groups are the primary goal users. EPA doesn't want to assist larger groups and entities who can get help TA assistance elsewhere such as brownfields and other philanthropic efforts set up for cities. **Chair Orduño** expressed concern that there may not be enough time to get this up and running especially with pandemic experiences and infusions of funding that required local assistance organizations and state agencies to ramp up their staffing and programs and led to frustration among residents.

Ms. Owen echoed concerns already raised, such as the timeline and hubs being mostly online because of connectivity issues within communities, large entities overseeing handling the distribution of funds, pilot programs becoming the default, spending the money so quickly, EPA relinquishing control of the funds to the large entities, setting the cap for cost rates, preferences for non-profits versus universities, and providing federal place-based commitments and pulling of resources. EPA lack of direct involvement with communities disadvantages communities without access to EPA and they won't have the critical relationships to hear about issues and concerns, and less of a direct audience with EPA.

Chair Orduño announced it was time for a break.

Chair Orduño encouraged members who haven't spoken yet to add to the discussion.

Vice-Chair Dr. Jelks echoed what others have said, such as the time constraints, the definition of large non-profit, track records of organizations, and the measurement tool used to understand if the organization can do the work. She stated her concern over the preparation of staff for the hubs with cultural competencies, community contexts of past challenges and current realities, and just relating to the community members. Technical know-how is one thing, but cultural readiness is another. She asked for clarification about the duration of the small $100,000 grants.

Ms. Shirley echoed Dr. Jelks' comment about the devil is in the detail. She also asked for clarification on what a "large" organization is. She asked what the end goal of the TA is. She asked if the EPA could invite NEJAC members to be on the proposal application committee. **Chair Orduño** added that it would seem that the folks that are managing the centers could be potential arbiters of information. Who would they be answering to and how will the information be used for other kinds of analytics.

Mr. Shabazz shared that the process should be an inverted pyramid in that the non-profit becomes the leader of the grant or the center, and other entities are there to support them. He explained that it changes the balance of power by making the larger partnership to provide the capacity and support but allow the local organization to drive the priorities for that particular TA hub. It's more authentic, and there's better engagement. He asked if there was a particular suite of services that these hubs provide. If you pick the type of services that you provide (water, air, etc.) will you make certain people more eligible than others? By default you make certain people eligible if you can't provide everything. He also asked, since the hubs are more of a virtual experience, can there be an emphasis on them being a place-based experience? A lot of people don't trust calling government entities. **Chair Orduño** added that tangible investments are more worthwhile.

Dr. Whitehead asked if there are providers in mind for the pilot program. Most universities won't bid on something that's less than 50 percent in overhead. She agrees that most of the money should go to the non-profits in the communities. She would be wary of a national organization coming in and working in a community they're not familiar with. When looking at success, she asked whose success are you measuring? The TA number of classes or an increase in capacity for a small organization or something else?

Rev. Ambrose Carroll stated that, since he's new, he likes to listen first. He stated that he's looking for the political will to get this done. It is the impetus and the funding to get the capacity for getting things started. The reality for redlined, subjugated communities is that they have something to offer and this is an opportunity to breaking previous ways of working and building capacity where it hasn't been trusted and where people and organizations haven't been resourced and have been etched out. He stated that there are non-profits in the community who don't want to help because they are not engaged. **Chair Orduño** agreed with him on those points.

Ms. Colon de Mejias echoed the question of, what are the end goals of the hubs? She also echoed the comment of engaging the non-profits in the community as the fore-step to solving the problems rather than as a last choice which also removes power from the community. Don't incentivize the problem entities, but empower the solution, for example, carbon credits versus lower emissions. She stated that she's concerned about EPA working with only a few entities versus ensuring that there are entities in all of the regions to socialize EPAs work and EJ issues and build trust and capacity and to be told to go here or there to search for resources.

Regarding the TAs, **Brenda Barreto** applauded the steps EPA is taking to make sure the grant funding is more available to those communities that may not otherwise reach or get access to this funding. They've had to establish resilient hubs through the transformation of community centers or churches that people trust and then move forward with providing citizen science certification and more. She stated her concern about the bureaucracy. EPA isn't always timely with guidance such as estuaries and BIL funding for FY22. She noted that she likes the idea of incorporating translation services. It is a huge barrier for communities to access funding and deal with the paperwork. **Chair Orduño** asked for her comments on the EJ Grants program regarding island communities. **Ms. Barreto** stated that her main concern is with any island or territories or any other jurisdiction that lacks the EJ state-wide or island-wide platform to obtain the funding or be able to translate this national policy into local actions. It's imperative that EPA requires these places to really have that in place to be effective at the local level.

Ayako Nagano echoed concerns about the large non-profits and academia holding the purse strings. She suggested that the hubs also become resiliency centers for various activities or workforce development.

Dr. Fritz agreed with many points. She highlighted the concern about overhead for universities. It is true that they like national grants because there's a higher percentage involved, but they also have a set percentage set aside to work on community issues as well. So, negotiations would have to occur to make that happen. She suggested reviewing the model at a certain period, such as at the three- to four-month mark, to make sure it's working the way it's intended and with deadlines. She suggested that advisory groups monitor the program.

Mr. Clow suggested that the TA centers can be a place to connect people with entities that can help and not tell people that they can't be helped and get referred elsewhere. **Chair Orduño** asked for an example. **Mr. Clow** replied that he would have to think about it to give one.

Chair Orduño stated her concern about the competitive nature of the grants in relation to the time constraint. She asked the OEJ Grants Program to consider this to be a less competitive process and instead find ways to have better distribution to more communities, especially for first-time applicants, recipients, or community-based issues.

Dr. Wilson stated that if all the questions on the letter are answered, this could be a great program. He recommended having a regional focus instead of just two entities controlling the money. He agreed with the flipping-it model, suggesting the community/university model where the community is the lead. He strongly agreed with the overhead cap on indirect cost (IDC) agreements and that equity is embedded in how the funding is disbursed.

Chair Orduño asked if anyone objected to extending the meeting by 30 minutes, so everything gets covered. No one objected. She moved on to the PFAS Workgroup discussion.

Dr. Whitehead reviewed the priority points from the last meeting. She explained that those points were condensed into the three priority points from the presentation yesterday: research, restrict, and remediate. The workgroup will take the comments and feedback from the meeting and roll them into Roadmap 2.0. That deadline is September. **John Doyle** stated that he is most concerned with the land and soil and has learned that the Bureau of Indian Affairs was the recipient of a lot military surplus items over the years that affected the soils and should be investigated. He has a call next week on the testing. **Ms. Shirley** stated her concern that recently, EPA requested volunteers to test the water, and the local water utility manager refused (which was not true) because he said that, if PFAS was found in the water, EPA would regulate it and it would cost money they don't have. She understands both sides: the cost of keeping it safe and hiding it because it costs money if found and they are already burdened financially. While military sites and industries hide, the small utilities struggle to keep running and their burdens need to be appreciated by EPA.

Mr. Krichen agreed with the general roadmap and offered specific examples to optimize restriction and remediation elements, such as enlisting allies in drinking water and wastewater area to track back in the system and find sources like orphan sites where there could be runoff

from PFAS coming into the system in need of a trackback. There are low-hanging opportunities at low-cost to get PFAS out of the system. **Dr. Whitehead** added Mr. Krichen points about biosolids to the PFAS Workgroups agenda items for its next meeting. **Chair Orduño** noted a Michigan news story where biosolids used as fertilizer where cows graze had PFAS detected in the beef served to children at a school. She didn't recall if it came from a wastewater treatment plant but concerns were raised about creating problems in new areas and getting a better understanding of potential impacts in using biosolids in other places. She added her concern with the roadmap plan and concerns still not including emergency responses to communities with high levels of contaminants. Remediate can be an extended process and oftentimes can mean it's being dealt with in institutions or organizations that can be resistant as we've heard from the Department of Defense that has not wanted to acknowledge its burden of responsibility in contamination on military bases and that affects the drinking water of adjacent communities. There's a need to ensure drinking water at the household level for communities that have been polluted or contaminated in their ground or drinking water sources. She added the roadmap needs to include immediate actions as appropriate responses in man-made disasters as we've talked about with lead in drinking water when systems don't adequately protect against changes in the source of their drinking water levels or not using adequate phosphates to line water mains or in climate-related disasters. EPA has to be an active participant in addressing emergency water needs. As Ms. Shirley has noted, small and rural systems are vulnerable. Benton Harbor is a community to keep watching. Office of Water is looking at the process to review how systems that haven't been meeting SDWA requirements should be under consideration for consolidation or regionalization. She noted that when we look at historical reasons why communities are in jeopardy to begin with or have not had the resources to upgrade their drinking water or water treatment plants, there's very much racialized and class-based reasons behind them such as when communities are left behind or private disinvestment leaves and the community is left holding the bag. More affluent communities also build their systems off the vulnerable community and leave them behind.

Ms. Barreto stated that she's concerned with the research part of PFAS. Sometimes their protocols aren't accurate or timely. She stated that she's also concerned about the internal capacity in the EPA to manage this new program. If the EPA is pushing an active agenda to reduce the exposure of communities to PFAS contaminated water they have to do somethings with their protocols to prevent and put forward the actions to save people's health. **Dr. Whitehead** noted that comment for the workgroup's next meeting agenda. She invited more members to join the workgroup.

Ms. Colon de Mejias noted the excellent work of the workgroups and reminded that PFAS can be found in food packaging and cooking products, not just in water, air, or land. People are reusing older packaging that may contaminate current food supplies, so education is an important component of the restriction goal, along with stopping the distribution of those products now. She also stated her concern with the timeliness of PFAS reports. She suggested that those reports go out on TV, social media, radio, and computer outlets. She also suggested that companies stop making packaging that contains PFAS now. **Ms. Shirley** stated that she's thankful that EPA is spending money to help communities, but they also need to remove people, systems, companies, and entities causing these problems, and remediate contaminants that are harming people now.

Ayako Nagano questioned, if EPA knew about these contaminants in packaging, et cetera, why

haven't they done anything sooner to prevent this from being created in the first place? Are they really protecting the people? The same thing happened in creating plastics.

Mr. Doyle informed the Council that this journey to ban PFAS began with burning garbage. The PFAS was in the smoke that people breathed, and that smoke settled in the water they drank and the land. The people were the impetus for EPA to start testing for PFAS. Indigenous people have many unknown influences on their health issues and they don't know where to start or how to address it, especially if they don't have the resources to do it. But if they don't do it, who will. Their well water and surface water is contaminated with PFAS and puts a burden on their community that they can't afford. **Chair Orduño** replied that EPA needs an immediate response plan when a community's drinking water is contaminated, such as bottled water, piping it in, reverse osmosis, and cleaning it up immediately with new technology that uses plasma. **Ms. Shirley** shared a story that the chair of that workgroup apologized for bringing in a PFAS-most-likely-containing water bottle that contains clean drinking clean water because she couldn't drink her own tap water. **Mr. Doyle** stated that he uses bottled water every day because he knows what's in the tap water and the river. His town doesn't have the resources to buy it, so they have to go ten miles to get water and 60 miles to get cheap water.

Dr. Carroll recalled, when he was a child, drinking from a family home's well in northern Louisiana, but now they have water pumped in from the city because the wells are polluted from runoff and fracking. Food grown in that area is now questionable. That area is called Cancer Alley for a reason. **Chair Orduño** thanked him for sharing the story. She moved the meeting to the next agenda item.

2.3 NEJAC Workgroup Updates

Ayako Nagano gave the updates for the NEPA Workgroup. They met with the Office of Federal Activities. The workgroup was given a three-pronged charge. The first is to look into internal NEPA trainings that the OFA is putting on and, then secondly external OFA trainings to other agencies regarding environmental justice issues, and then the third is to help the EPA provide project-specific technical assistance on EJ considerations to lead agencies in community with EJ concerns. **Dr. Piazza** added that it's the specific content of that training that needs to be looked at. They will work on that charge until the end of the year and then transition to another aspect of NEJAC.

Chair Orduño asked for clarification on the charges themselves. **Ayako Nagano** explained it again. **Chair Orduño** asked for clarification that all charges need to come to the Council first, and then it goes to the specific workgroup. **DFO Jenkins** replied that normally, yes, official charges would come to the NEJAC first, but this is not an official charge yet. **Dr. Piazza** added that maybe "charge" was not the correct word. **Karen Martin**, **U.S. EPA**, clarified that EPA has agreed to sit in with the workgroup as they are discussing this issue. She stated that, right now, the workgroup is in a consultation phase, and then she explained the process of a charge. **Chair Orduño** thanked her for the clarification.

Vice-Chair Dr. Jelks gave the updates for the Water Quality Infrastructure Workgroup. They are meeting with the Office of Water often. They are working on giving major input to the Finance and Infrastructure Workgroup letter, developing their own letter by October regarding

potential gaps in the 100 Day Letter, consolidating feedback and recommendations for the Office of Water, and lastly possibly hosting a public meeting centered on water infrastructure issues. She also explained that last week, they received a letter from the National Association of Clean Water Agencies requesting help for their newly formed EJ committee. They're looking for help with principles and recommended actions. **Mr. Kricun** added that NACLA is looking to potentially become an EJ resource for their communities. **Chair Orduño** added that there's also conversations around the implementation of State Revolving Fund dollars. She also added that the infrastructure dollars are decisions made by state legislatures. She stated that it's difficult to bring forward recommendations between workgroup and public NEJAC meetings, so they've been having stakeholder meetings instead.

Vice-Chair Tilchin gave the updates for the Air Quality and Community Monitoring Workgroup. He stated that they are working on a recommendations letter to present to the NEJAC. OAR has been working with them on that letter. The discussions from this meeting will help also. **Dr. Fritz** asked what the difference is between receiving questions and a charge. **Ms. Martin** explained that, when EPA is asking for recommendations from an advisory committee, it comes in two forms. One is with an official charge to the whole NEJAC, and that's when NEJAC formed the workgroups to address them. The whole Council sends the official response back. The second is with consultation with individual members of the workgroup. Individuals can write letters as well.

Chair Orduño gave the updates for the Farmworkers and Pesticides Workgroup. They are working on the development of a charge with the Office of Pesticides regarding worker protection standard non-compliance because the work from them so far has not been enough, especially with women. The workgroup is hoping to have a draft at the next public meeting.

2.4 Announcements and Appreciations

Karen Martin reminded everyone that this was DFO Jenkins' last meeting. She announced that **Ms. Paula Flores-Gregg** will be the incoming DFO. Many thanks were given to DFO Jenkins by various members. **DFO Jenkins** also gave his thanks and appreciation.

2.5 Closing Remarks & Adjourn

DFO Jenkins adjourned the meeting.

[MEETING ADJOURNED]

I, Sylvia Orduño, Chair of the National Environmental Justice Advisory Council, certify that this is the final meeting summary for the public meeting held on June 22-23, 2022, and it accurately reflects the discussions and decisions of the meeting.

Sylvia Orduño
Date: September 6, 2022

Additional Submitted Written Public Comments – APPENDIX 1

Appendix 1. Written Public Comments

2022-06-22 NEJAC Cover Letter re EPA Incinerator Standards.pdf 2

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EARTHJUSTICE

July 5, 2022

Submitted electronically to *nejac@epa.gov*
Chairperson Sylvia Orduño
National Environmental Justice Advisory Council
Office of Environmental Justice
U.S. Environmental Protection Agency [Mail Code 2201A]
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Chair Orduño and Members of the National Environmental Justice Advisory Council:

This letter requests that the National Environmental Justice Advisory Council ("NEJAC") help protect fenceline communities by urging EPA to expand and strengthen its assessment of fenceline community risks without delaying the regulation of chemicals that were previously evaluated under the Toxic Substance Control Act ("TSCA"). In 2016, Congress amended TSCA, directing EPA to evaluate and eliminate chemicals' unreasonable risks not only to the general public, but also to groups that that face higher levels of chemical exposure or are more susceptible to chemical exposure ("potentially exposed or susceptible populations")[1]. Those groups include communities surrounding the sites where toxic chemicals are manufactured, used, released, and disposed, as well as communities that face increased chemical exposures from their food and drinking water. These communities often face outsized harm, as they are more likely to be dealing with intrinsic factors, such as underlying health concerns, as well as extrinsic factors, such as psychological stress related to factors such as poverty and structural racism. These factors can make people more susceptible to harm from chemical exposures, so communities experiencing these stressors will face greater risks following an exposure than communities without them. Despite these concerns, EPA's approach to assessing community risks (the "Draft Fenceline Assessment Approach") leads to an underestimation of chemical exposure and susceptibility, and a corresponding underestimation of risk. **For this reason, we ask the NEJAC to urge EPA to 1) implement near-term changes to its Fenceline Assessment Approach for chemicals that have already been evaluated under TSCA and 2) to implement broader changes, including the calculation of cumulative risks, for future TSCA risk evaluations.**

1. EPA's current Fenceline Assessment Approach fails to adequately assess risks to fenceline communities

EPA's mandate to evaluate risks to communities facing high levels of chemical exposure is only satisfied if EPA considers the full range of intended, known, and reasonably foreseen ways that fenceline communities will be exposed to toxic substances. EPA's current Fenceline Assessment Approach fails to meet that standard. In particular, the approach narrowly defines fenceline communities, does not adequately consider available data on pre-existing levels of chemical exposure or peak facility releases, and does not reflect input from exposed communities

[1] 15 U.S.C. § 2605(b)(4)(A).

themselves. Further, the approach fails to incorporate the cumulative impacts of multiple chemicals and multiple polluting facilities, as EPA is only looking at exposure from one chemical and one facility at a time. However, many chemicals cause the same kind of negative health and safety effects, compounding the harm that communities face when exposed to multiple toxins in one area, something not uncommon in manufacturing areas, particularly those with a long industrial past.

2. Immediate modifications will allow for increased protections for fenceline communities without delaying regulation.

EPA has expressed concern that modification of its Fenceline Assessment Approach may result in a delay of regulation for chemicals that have already been evaluated and found to present unreasonable risk. However, the choice between doing things quickly and doing things correctly is a false dichotomy; there are steps that EPA can take now that will allow for the swift regulation of chemicals while also ensuring that fenceline assessments for those chemicals are more reflective of communities' actual exposures and risks. Many of these available steps have been outlined by the Science Advisory Committee on Chemicals ("SACC") and by community organizations working within this space.[2]

Firstly, EPA should consider the risks to people who are exposed to the same chemical from multiple facilities and sources, as is often the case in the fenceline communities where polluting facilities are concentrated. This could be done quickly and with little additional cost by utilizing existing EPA air modeling software. Secondly, EPA should consider data on preexisting levels of contamination in fenceline communities, as well as peak emissions from polluting facilities to both incorporate existing exposure pathways and better understand the volume of toxins fenceline communities are faced with. Third, EPA should account for cumulative impacts that have not yet been fully quantified; in the short term, this could be done by including an additional database deficiency uncertainty factor. Lastly, EPA should incorporate at least five years of TRI data, as well as data available through federal or state sources and fenceline monitoring, to better estimate chemical releases into communities. These modifications, if implemented for the ten chemicals that have already been assessed under TSCA, will allow for increased community protection without delaying the needed regulation of those chemicals.

3. Broader changes to the Fenceline Assessment Approach can be implemented to strengthen the risk evaluation process going forward.

NEJAC should also urge EPA to make larger changes to the Fenceline Assessment Approach for the risk evaluations that EPA is currently undertaking, including consultation with community experts representing impacted communities. As identified by the SACC, EPA should "reach out to Unique Communities … the [National Tribal Toxics Council] and other tribal, indigenous groups" about improvements to the Fenceline Assessment Approach, and

[2] EPA, Final SACC Report and Meeting Minutes: Draft TSCA Screening Level Approach for Assessing Ambient Air and Water Exposures to Fenceline Communities Version 1.0 ("SACC Report") at 15 (May 16, 2022); Earthjustice, et. al., Comments on Draft Scopes of the Risk Evaluations for the First Twenty High-Priority Substances under TSCA (May 26, 2020).

"incorporate their recommendations in the Version 2.0 of that document."[3]. Additionally, as acknowledged by both the SACC and NEJAC, EPA should incorporate analysis of cumulative impacts of multiple chemicals within their risk assessment methodology.

This is particularly necessary for areas like Port Arthur, Texas, and in communities in Cancer Alley, Louisiana. Residents of Port Arthur are more exposed than the general population to at least five of chemicals that are currently being evaluated under TSCA, including 1,1,2-TCE, phthalic anhydride, formaldehyde, 1,3-butadiene, and 1,2-dichloroethane From 2012 to 2018, facilities in the Port Arthur area released, transferred off-site, and/or received just over 16 million pounds of these five chemicals.[4] The communities within Cancer Alley, which describes the 85-mile industrial corridor stretching from New Orleans to Baton Rouge, have greater exposure than the general population to nine of the TSCA high-priority chemicals, including 1,1,2-TCE, 1,2-DCP, EDB, 1,1-DCA, DBP, phthalic anhydride, formaldehyde, 1,2-butadiene, and 1,2-dichloroethane.[5] When assessing the risk of additional chemicals under TSCA, EPA's current methodology would fail to consider the already high chemical burden on communities like these, ignoring the cumulative impacts that co-existing which such high toxicity levels can have on community health.

The recommendations both for short-term modifications and longer term changes all echo concerns that NEJAC have expressed in the past. In 2004, in the Ensuring Risk Reduction in Communities with Multiple Stressors: Environmental Justice and Cumulative Risks/Impacts Report[6], NEJAC identified the need for EPA to incorporate vulnerability into assessment tools, noting that "disadvantaged, underserved, and environmentally overburdened communities reflect a complex web of combined exposures." In the almost two decades since the release of that report, EPA has failed to develop an adequate strategy to evaluate the risks completely and accurately for overburdened communities. In the meantime, millions of people have been living, working, attending school, playing, and worshiping in close proximity to clusters of facilities that release large volumes of toxins to the air, water, and land. We ask that NEJAC write to EPA and urge EPA: (1) to assess the full range of chemical exposures and risks to fenceline communities in all upcoming TSCA risk evaluations, including cumulative risks to people who are exposed to multiple chemicals and non-chemical stressors and (2) to adopt near-term, readily available changes to its fenceline assessments for the chemicals that EPA has previously evaluated under TSCA, and to use those improved assessments to inform EPA's regulation of those chemicals.

We also offer our team as a resource to the NEJAC related to any fenceline monitoring or risk evaluation issues.

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[3] SACC Report at 66.
[4] Earthjustice, et. al., Comments on Draft Scopes of the Risk Evaluations for the First Twenty High-Priority Substances under TSCA (May 26, 2020).
[5] *Id.*
[6] NEJAC, *Ensuring Risk Reduction in Communities with Multiple Stressors: Environmental Justice and Cumulative Risks/Impacts*, (Dec. 2004), https://www.epa.gov/sites/production/files/2015-02/documents/nejac-cum-risk-rpt122104.pdf.

Respectfully submitted,

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June 23, 2022

National Environmental Justice Advisory Council
Submitted electronically to nejac@epa.gov

Re: EPA's Delay in Updating Municipal Solid Waste Incinerator Standards

Dear NEJAC Members,

Thank you so much for your insightful comments to my testimony on municipal waste combustion units at your June 22 meeting. The rules governing emissions from these facilities are now decades overdue and many of the facilities are over three decades old. The USEPA continues to grant a regulatory subsidy to these facilities by failing to issue regulations which protect the health of the communities hosting the facilities. Modern air pollution control technologies are required on just a handful of these incinerators; it is long past time for USEPA to issue rules which comply with the Clean Air Act and protect environmental justice communities from the harmful impacts of emissions from these incinerators.

There are 157 incinerator units at 57 sites across the country, but these sites are concentrated in a handful of states. Over 90 of the 157 incinerator units in the country are in just these six states:

Connecticut — 12 incinerator units at 5 sites
Florida — 24 incinerator units at 12 sites
Massachusetts — 11 incinerator units at 7 sites
New Jersey — 13 incinerator units at 4 sites
New York — 13 incinerator units at 10 sites
Pennsylvania — 19 incinerator units at 6 sites

We are requesting that the NEJAC urge USEPA to finally issue rules for Municipal Waste Combustors that protect public health and comply with the law as soon as possible.

We are attaching a letter on this topic submitted to the White House Environmental Justice Advisory Committee from Breathe Free Detroit, California Communities Against Toxics, Center for Environmental Transformation, Earthjustice, East Yard Communities for Environmental Justice, Florida Rising, Global Alliance for Incinerator Alternatives, Ironbound Community Corporation, New Jersey Environmental Justice Alliance, Oregon Physicians for Social Responsibility, South Baltimore Community Land Trust, and Valley Improvement Project.

Thank you so very much for your kind attention to this critical public health issue. Communities hosting these facilities need your help to protect their health and well-being.

Cordially,

Jane Williams
Executive Director, California Communities Against Toxics
Rosamond, California
661-256-2101

Attachment:

Letter to White House Environmental Justice Advisory Committee from Breathe Free Detroit, California Communities Against Toxics, Center for Environmental Transformation, Earthjustice, East Yard Communities for Environmental Justice, Florida Rising, Global Alliance for Incinerator Alternatives, Ironbound Community Corporation, New Jersey Environmental Justice Alliance, Oregon Physicians for Social Responsibility, South Baltimore Community Land Trust, and Valley Improvement Project

Fluoridation Policy:

An Annotated Bibliography of Published Science

A sampling of the scientific studies and reports relevant to water fluoridation published since the HHS 2015 recommendation to lower the fluoridation target to 0.7 ppm is listed below.

I suggest these items provide compelling evidence that 0.7 ppm is neither optimal nor safe and that any claims to the contrary are ill-founded. Moreover, protests that more study is required before banning fluoridation is a tacit endorsement of human experimentation without individual consent which is medical assault - *Karen F. Spencer*

2022

RIGHT QUESTION: Given the robust and consistent evidence regarding the developmental neurotoxic impact of fluoridation policy, the question that needs to be evaluated by communities should be: is this intervention worth the risk of lowering the IQ of at least certain individuals when we have a viable substitute, i.e. fluoridated toothpastes?
https://www.karger.com/Article/Abstract/520789

- Vieira AR The Overlooked Individual: Susceptibility to Dental Caries, Erosive Tooth Wear and Amelogenesis. Monogr Oral Sci. Basel, Karger, 2022, vol 30, pp 140–148.

PAROTID GLANDS: Animal study finds fluoride exposure results in oxidative stress and changes in oxidative biochemistry of the largest salivary gland which stimulates compensatory mechanisms and increases risk to the complex cell cytoskeleton.
https://www.ncbi.nlm.nih.gov/labs/pmc/articles/PMC8794182/

- Miranda GHN, et al. Effects of long-term fluoride exposure are associated with oxidative biochemistry impairment and global proteomic modulation, but not genotoxicity, in parotid glands of mice. PLoS One. 2022 Jan 27;17(1):e0261252.

LOWER PERFORMANCE IQ: Examined children's IQ at three separate time points (age 4, 5, and 6–12 years) to determine longitudinal and domain specific effects of prenatal fluoride exposure on IQ in mother-child dyads from the Early Life Exposures in Mexico to Environmental Toxicants (ELEMENT) cohort. Found prenatal exposure to fluoride, which is primarily from fluoridated salt programs, is associated with sustained impacts on IQ. Non-verbal abilities may be more susceptible to impairment from prenatal fluoride exposure as compared to verbal abilities.
https://www.sciencedirect.com/science/article/abs/pii/S0013935122003206?via%3Dihub

- Goodman C, et al. Domain-specific effects of prenatal fluoride exposure on child IQ at 4, 5, and 6–12 years in the ELEMENT cohort. Environmental Research. 2022

GENOTOXIC: According to public health authorities, fluoride has a narrow range between the concentration which is beneficial and that which has adverse effects. The primary exposure to the fluoride-ion is through drinking water supplemented with fluorosilicic acid (FA). FA in ‘safe’ doses causes DNA damage in human osteoblast cells, reduces the telomere length and induces oxidative stress. Although combinations of fluoride with other toxins could have a synergistic effect, this study found that FA alone affects the genomic integrity of human bone cells.
https://pubmed.ncbi.nlm.nih.gov/35483789/

- Garcia ALH, Matzenbacher CA, Soares S, Rohr P, da Silva J. Fluorosilicic acid and cotinine, separately and in combination, induce genotoxicity and telomeric reduction in human osteoblast cell line MG63. Mutat Res Genet Toxicol Environ Mutagen. 2022 Apr-May;876-877:503474.

BODY & BRAIN: "Fluoride in higher concentrations or continuous exposure to lower doses are both found to induce mental imbalance in animals apart from the genotoxic, immunotoxic, and cytotoxic effects commonly observed. The behavioral profile of fluoride-treated animals has corroborated the clinical symptoms seen in fluoride-poisoned humans." https://pubmed.ncbi.nlm.nih.gov/35488996/

- Ottappilakkil H, Babu S, Balasubramanian S, Manoharan S, Perumal E. Fluoride Induced Neurobehavioral Impairments in Experimental Animals: a Brief Review. Biol Trace Elem Res. 2022 Apr 30.

PROBIOTICS: Adding probiotics to school milk is more effective and less costly than fluoride varnish in preventing cavities in children. https://pubmed.ncbi.nlm.nih.gov/35567374/

- Rodriguez GA, Cabello RA, Borroni CP, Palacio RA. Cost-effectiveness of probiotics and fluoride varnish in caries prevention in preschool children. J Public Health Dent. 2022 May 14.

OVARIAN & TESTICULAR: Animal study from in utero through puberty showing adverse impact on reproductive function. "Approximately 80–90% of fluoride absorbed by infants and children accumulates in the body. It can enter into the umbilical cord blood of the child from the mother through the placenta. In addition, significantly high fluoride content in breast milk is indicative of fluoride exposure to infants. Young children show less resistance to the toxic effects of fluoride than adults because of under-developed defense mechanisms and highly permeable blood-brain barrier." https://link.springer.com/article/10.1007/s12011-022-03220-8

- Li, W., Sun, Z., Li, M. et al. Exposure to Fluoride From in Utero to Puberty Alters Gonadal Structure and Steroid Hormone Expression in Offspring Rats. Biol Trace Elem Res (2022).

BIRTH ANTHROPOMETRY: Using ELEMENT cohort, authors determined maternal exposure to fluoride affects length and weight of newborns with different susceptibility windows. Advises women avoid fluoride during pregnancy. https://pubmed.ncbi.nlm.nih.gov/35660617/

- Ortíz-García SG, Torres-Sánchez LE, Muñoz-Rocha TV, Mercado-García A, Peterson KE, Hu H, Osorio-Yáñez C, Téllez-Rojo MM. Maternal urinary fluoride during pregnancy and birth weight and length: Results from ELEMENT cohort study. Sci Total Environ. 2022 Jun 2:156459. PMID: 35660617.

KIDNEY KILLER: Using U.S. NHANES data, finds water fluoridation results in significantly higher plasma fluoride levels in healthy teens with lower renal function, suggesting a vicious feedback loop for those with CKD.
https://www.sciencedirect.com/science/article/abs/pii/S0013935122009306

- John Danziger, Laura E.Dodge, Howard Hu. Role of renal function in the association of drinking water fluoride and plasma fluoride among adolescents in the United States: NHANES, 2013–2016. Environmental Research. 7 June 2022.

2021

BENCHMARK DOSE ANALYSIS: Using fluoride studies from MIREC and ELEMENT projects as input, the results of which are consistent with other studies, authors identify 0.2 mg/L as having an adverse impact on neurodevelopment. "The prospective studies offer strong evidence of prenatal neurotoxicity, and the benchmark results should inspire a revision of water-fluoride recommendations aimed at protecting pregnant women and young children." https://pubmed.ncbi.nlm.nih.gov/34101876/

- Grandjean P, Hu H, Till C, Green R, Bashash M, Flora D, Tellez-Rojo MM, Song P, Lanphear B, Budtz-Jørgensen E. A Benchmark Dose Analysis for Maternal Pregnancy Urine-Fluoride and IQ in Children. Risk Analysis. 8 June 2021.

LIFETIME EXPOSURE: Fluoridation is the primary source of fluoride exposure for 1,629 Canadians between 3 and 79 that finds substantially higher lifetime fluoride exposure in fluoridated communities using CHMS data, increasing with age. Vulnerable subpopulations to adverse effects of fluoride noted as the young, those who are iodine deficient, and post-menopausal women. https://www.mdpi.com/1660-4601/18/12/6203/htm

- Julia K. Riddell, Ashley J. Malin, Hugh McCague, David B. Flora, and Christine Till. Urinary Fluoride Levels among Canadians with and without Community Water Fluoridation. Int. J. Environ. Res. Public Health 2021, 18(12), 6203.

KIDNEYS: This study of 1,070 adults found every 1 mg/L increment in the urinary fluoride concentrations was associated with significant increases of 22.8% in the risk of kidney function injury after adjusting for potential confounding factors. Authors conclude that long-term fluoride exposure is associated with compromised kidney function in adults, and that urinary NAG is a sensitive and robust marker of kidney dysfunction caused by fluoride exposure. https://pubmed.ncbi.nlm.nih.gov/34478979/

- Wu L, Fan C, Zhang Z, Zhang X, et al. Association between fluoride exposure and kidney function in adults: A cross-sectional study based on endemic fluorosis area in China. Ecotoxicol Environ Saf. 2021 Aug 31;225:112735.

BEHAVIORAL CHANGES: Children in Cincinnati Childhood Allergy and Air Pollution Study (CCAAPS) assessed at age 12. Boys in particular did not experience significant anxiety or depression, yet had somatic behaviors based on their childhood urinary fluoride (CUF) concentrations, “seven times more likely to exhibit ‘at-risk’ internalizing symptomology.” https://pubmed.ncbi.nlm.nih.gov/34755609/

- Adkins EA, Yolton K, Strawn JR, Lippert F, Ryan PH, Brunst KJ. Fluoride exposure during early adolescence and its association with internalizing symptoms. Environ Res. 2021 Oct 29:112296.

CRITICAL WINDOWS: Using urine samples and test scores from 596 mother-child Canadian pairs in the MIREC prospective cohort, researchers found evidence that developmental neurological damage was based on timing of fluoride exposure and gender, “Associations between fluoride exposure and PIQ (performance IQ) differed based on timing of exposure. The prenatal window may be critical for boys, whereas infancy may be a critical window for girls.” https://pubmed.ncbi.nlm.nih.gov/34051202/

- Farmus L, Till C, Green R, Hornung R, Martinez-Mier EA, Ayotte P, Muckle G, Lanphear B, Flora D. Critical Windows of Fluoride Neurotoxicity in Canadian Children. Environ Res. 2021 May 26:111315.

GENES: Several genes make individuals more vulnerable to the neurotoxic impact with gender differences, also affecting mitochondria and suggesting vulnerability to dementia. Chinese study of 952 school children between 7 and 13 using water, urinary, hair and nail fluoride identified multiple neurodevelopmental metabolic pathways that result in adverse effects from low fluoride exposures. https://www.sciencedirect.com/science/article/pii/S0160412021003068

- Yu X, Xia L, Zhang S, et al. Fluoride exposure and children's intelligence: Gene-environment interaction based on SNP-set, gene and pathway analysis, using a case-control design based on a cross-sectional study. Environ Int. 2021 Jun 4;155:106681.

GENETIC VULNERABILITY: Dopamine relative genes affect the susceptibility of individuals to fluoride toxicity even in safe water concentrations which result in lowered IQ so that “low-moderate fluoride exposure is inversely related to children’s IQ.” https://pubmed.ncbi.nlm.nih.gov/33360592/

- Zhao L, Yu C, Lv J, et al. Fluoride exposure, dopamine relative gene polymorphism and intelligence: A cross-sectional study in China. Ecotoxicology and Environmental Safety. 2021 Feb;209:111826.

BRITTLE BONES: "In this cohort of postmenopausal women, the risk of fractures was increased in association with two separate indicators of fluoride exposure. Our findings are consistent with RCTs and suggest that high consumption of drinking water with a fluoride concentration of ~1 mg/L may increase both BMD (bone mineral density) and skeletal fragility in older women." https://pubmed.ncbi.nlm.nih.gov/33822648/

- Helte E, Donat Vargas C, Kippler M, Wolk A, Michaëlsson K, Åkesson A. Fluoride in Drinking Water, Diet, and Urine in Relation to Bone Mineral Density and Fracture Incidence in Postmenopausal Women. Environ Health Perspect. 2021 Apr;129(4):47005.

OSTEOARTHRITIS: Identifies fluoride as an environmental chemical that has adverse effects on articular cartilage and osteoarthritis (OA) risk. "In full sample analysis, a 1 mg/L increase in UF (urinary fluoride) level was associated with a 27% higher risk of OA." https://link.springer.com/article/10.1007/s12011-021-02937-2

- Sowanou, A., Meng, X., Zhong, N. et al. Association Between Osteoarthritis and Water Fluoride Among Tongyu Residents, China, 2019: a Case–Control of Population-Based Study. Biol Trace Elem Res (2021).

NO BENEFIT FOR PRESCHOOLERS: Polish study finds 'optimal' fluoride concentrations in water provide no dental benefit. Dental caries experience depended on oral hygiene and diet. https://www.sciencedirect.com/science/article/abs/pii/S0946672X2100016X

- Opydo-Szymaczek J, et al. Fluoride exposure and factors affecting dental caries in preschool children living in two areas with different natural levels of fluorides. Journal of Trace Elements in Medicine and Biology. Volume 65. 2021.

ALTERNATIVE: This systematic review and meta-analysis concludes that biomimetic hydroxyapatite-containing, fluoride-free oral care products are effective in reducing dental decay, especially in children without the risk of dental fluorosis and neurotoxicity inherent in topical use of fluoridated products. https://files.cdha.ca/profession/journal/2752.pdf

- Hardy Limeback, BSc, PhD, DDS; Joachim Enax, Dr; Frederic Meyer, Dr. Biomimetic hydroxyapatite and caries prevention: a systematic review and meta-analysis. | Can J Dent Hyg 2021;55(3): 148-159.

AMERICAN KIDNEYS: Using U.S. NHANES data from two recent cycles, finds 'optimal' amounts of fluoridated water results in high incidence of uric acid in adolescents suggesting higher risk of kidney disease and other illnesses. Identifies dose-response trend in plasma fluoride of teens.
https://www.sciencedirect.com/science/article/pii/S0147651320315074

- Yudan Wei, Jianmin Zhu, Sara Ann Wetzstein. Plasma and water fluoride levels and hyperuricemia among adolescents: A cross-sectional study of a nationally representative sample of the United States for 2013–2016. Ecotoxicology and Environmental Safety. Volume 208. 15 January 2021.

TODDLERS: The Programming Research in Obesity, Growth, Environment and Social Stressors (PROGRESS) cohort included 948 mother-child pairs from Mexico City. Blinded testing of children between one and 24 months to examine associations between maternal fluoride intake from food and beverages during pregnancy and offspring neurodevelopment in this prospective and longitudinal study found, "higher exposure to fluoride from food and beverage consumption in pregnancy was associated with reduced cognitive outcome, but not with language and motor outcome in male offspring over the first two years of life." https://fluoridealert.org/wp-content/uploads/cantoral-2021.final_.pdf

- Alejandra Cantoral, Martha M. Tellez-Rojo, Ashley J. Malin, Lourdes Schnaas d, ErikaOsorio-Valencia, Adriana Mercadob, E. Angeles Martínez-Mier, Robert O. Wright, Christine Till. Dietary fluoride intake during pregnancy and neurodevelopment in toddlers: A prospective study in the progress cohort. Neurotoxicology 87 (2021) 86–93.

NO SAFE DOSE: Study of Mexican children and their mothers using measurements of urinary fluoride and water concentrations associated dental fluorosis and lowered IQ with fluoride dose consistent with findings of larger studies in other countries. Authors declare WHO fluoride guidelines are unsafe and hypothesize that 0.045 F^- mg/day is a protective exposure
https://www.mdpi.com/1660-4601/18/21/11490/htm

- Farías P, Estevez-García JA, Onofre-Pardo EN, Pérez-Humara ML, Rojas-Lima E, Álamo-Hernández U, Rocha-Amador DO. Fluoride Exposure through Different Drinking Water Sources in a Contaminated Basin in Guanajuato, Mexico: A Deterministic Human Health Risk Assessment. International Journal of Environmental Research and Public Health. 2021; 18(21):11490.

BABY BRAIN POISON: Exposure to fluoridated water (10 mg/L & 50 mg/L) beginning on the first day of pregnancy and continuing through the last day of breastfeeding shows chemical imbalances, cellular damage and changes in the hippocampus of Wistar rat offspring that would affect neurological development.
https://pubmed.ncbi.nlm.nih.gov/33096359/

- Ferreira MKM, Aragão WAB, Bittencourt LO, Puty B, Dionizio A, Souza MPC, Buzalaf MAR, de Oliveira EH, Crespo-Lopez ME, Lima RR. Fluoride exposure during pregnancy and lactation triggers oxidative stress and molecular changes in hippocampus of offspring rats. Ecotoxicology and Environmental Safety. 2021 Jan 15;208:111437.

BAD TEETH - BAD BRAIN: Chinese study confirm 1.6 ppm v. 0.1 ppm results in children with both damaged teeth and lower IQ. Authors validate that fluoride affects thyroid function, neurotransmitters and mitochondrial energy enzymes. There were no students with low IQ found in the area with low F level. There was high IQ among the 96.6% of the students who did not experience fluorosis.
https://www.sciencedirect.com/science/article/pii/S0213911121001965

- Yani SI, Seweng A, Mallongi A, et al. The influence of fluoride in drinking water on the incidence of fluorosis and intelligence of elementary school students in Palu City. Gac Sanit. 2021;35 Suppl 2:S159-S163.

GUTS & BRAINS: Memory function was reduced and gut microbiota structure was significantly altered in fluoride-exposed mice.
https://www.sciencedirect.com/science/article/pii/S0147651321002190

- Xin J, Wang H, Sun N, Bughio S, Zeng D, Li L, Wang Y, Khalique A, Zeng Y, Pan K, Jing B, Ma H, Bai Y, Ni X. Probiotic alleviate fluoride-induced memory impairment by reconstructing gut microbiota in mice. Ecotoxicol Environ Saf. 2021 Jun 1;215:112108

INFLAMED GUTS: Exposure to fluoridated water at both doses (10 mg/L & 50 mg/L) inflame guts in rats and alters the gut microbiome as compared to control (0 mg/L).
https://pubmed.ncbi.nlm.nih.gov/33508686/

- Dionizio A, Uyghurturk DA, Melo CGS, Sabino-Arias IT, Araujo TT, Ventura TMS, Perles JVCM, Zanoni JN, Den Besten P, Buzalaf MAR. Intestinal changes associated with fluoride exposure in rats: Integrative morphological, proteomic and microbiome analyses. Chemosphere. 2021 Jan 11;273:129607.

PUBERTY: Black girls consuming optimally fluoridated water have earlier menarche.
https://doi.org/10.1007/s12403-021-00448-y

- Malin, A.J., Busgang, S.A., Garcia, J.C. et al. Fluoride Exposure and Age of Menarche: Potential Differences Among Adolescent Girls and Women in the United States. Expo Health (2021).

HARMFUL ADEQUATE INTAKE (AI): Study found "the levels of dietary F- intake were below the current AI, were greater towards the end of gestation and in women who were moderately and highly compliant with Mexican dietary recommendation" in ELEMENT cohort and recommended changing future dietary recommendations due to evidence of developmental neurotoxicity at even low dose exposure. https://pubmed.ncbi.nlm.nih.gov/33602354/

- Castiblanco-Rubio, G., Muñoz-Rocha, T., Cantoral, A., Téllez-Rojo, M., Ettinger, A., Mercado-García, A., Peterson, K.E., Hu, H., Martínez-Mier, E. (2021). Dietary Fluoride Intake Over the Course of Pregnancy in Mexican Women. Public Health Nutrition, 1-25.

CALCIUM & FLUORIDE IN PREGNANCY: Calcium intake during pregnancy lowers urinary fluoride (UF) concentrations by some unknown mechanism in ELEMENT cohort. https://pubmed.ncbi.nlm.nih.gov/34176079/

- Castiblanco-Rubio GA, Muñoz-Rocha TV, Téllez-Rojo MM, Ettinger AS, Mercado-García A, Peterson KE, Hu H, Cantoral A, Martínez-Mier EA. Dietary Influences on Urinary Fluoride over the Course of Pregnancy and at One-Year Postpartum. Biol Trace Elem Res. 2021 Jun 26.

SAFETY: Evidence of dental fluorosis and other adverse effects to bodies and brains from supposed safe concentrations is alarming. "The safety of public health approach of drinking water fluoridation for global dental caries reduction are urgently needed further research." https://www.sciencedirect.com/science/article/pii/S0147651321005510?via%3Dihub

- Dong H, Yang X, Zhang S, Wang X, Guo C, Zhang X, Ma J, Niu P, Chen T. Associations of low level of fluoride exposure with dental fluorosis among U.S. children and adolescents, NHANES 2015-2016. Ecotoxicol Environ Saf. 2021 Jun 22;221:112439.

SKELETAL FLUOROSIS: This Chinese study of the pathogenetic progression of skeletal fluorosis, details how local signaling pathways, hormones, promoter DNA hypermethylation, RNA expression etc. are affected by fluoride exposure leading to pain and disability. https://www.mdpi.com/1422-0067/22/21/11932/htm

- Qiao L, Liu X, He Y, Zhang J, Huang H, Bian W, Chilufya MM, Zhao Y, Han J. Progress of Signaling Pathways, Stress Pathways and Epigenetics in the Pathogenesis of Skeletal Fluorosis. International Journal of Molecular Sciences. 2021; 22(21):11932.

DEPRESSION: Animal study finds negative changes in brain structure and behavior with exposure to sodium fluoride (NAF). https://pubmed.ncbi.nlm.nih.gov/34735150/

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BLOOD: Canadian Health Measures Survey (CHMS) collects extensive biomonitoring data used to assess the exposure of Canadians to environmental chemicals finds higher fluoride in urine associated with significantly higher blood lead, urinary lead, etc. Also finds urinary selenium is significantly lower in fluoridated Canadian communities, "this is the first study where biomonitoring data from multiple cycles of CHMS were combined in order to generate robust estimates for subsets of the Canadian population. Such assessments can contribute to a regional-level prioritization of control measures to reduce the exposure of Canadians to chemicals in their environment."
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- Minghui Gao et al, Association between low-to-moderate fluoride exposure and bone mineral density in Chinese adults: Non-negligible role of RUNX2 promoter methylation. Ecotoxicology and Environmental Safety. Volume 203, 15 October 2020.

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SEX HORMONES IN FLUORIDATED US: "The data indicated gender- and age-specific inverse associations of fluoride in plasma and water with sex steroid hormones of total testosterone, estradiol and SHBG in U.S. children and adolescents."
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https://link.springer.com/article/10.1007/s12011-020-02249-x

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PEDIATRIC BONE DISEASE: Identifies fluoride concentrations in water above 1.2 ppm as "dangerously high" that can cause pediatric bone disease. Urine measurements of fluoride in those afflicted are below the fluoride concentrations in women living in optimally fluoridated communities per 2017 Canadian study by Green et al.
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KIDNEY & LIVER: Researchers at Mt. Sinai Medical School find American teens in optimally fluoridated American towns have markers for altered kidney & liver parameters that puts them at higher risk for kidney & liver disease as adults. Notes the primary source of fluoride is water.
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DEMENTIA: Describes mechanism by which the effectiveness of the two most popular drugs used to treat Alzheimer's & other neurodegenerative dementia disease is reduced or blocked by fluoride. https://www.mdpi.com/1660-4601/16/1/10/htm

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ADULT BRAINS: First long term NaF animal study (10 weeks) using moderate levels of fluoride finds a number of histological changes including in parts of the brain associated with memory and learning. https://www.sciencedirect.com/science/article/pii/S0045653518317508

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DELAYED MALE PUBERTY: This 4th study from the NIH sponsored ELEMENT investigation of the prenatal impact of low-dose prenatal exposure found a significant pattern of delayed puberty for boys associated with maternal fluoride as measured in urine samples. Female data showed non-significant trend towards earlier menarche. More study needed to determine the impact on sexual development. https://www.ncbi.nlm.nih.gov/pubmed/30922319

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ANXIETY & DEPRESSION: Both rats and children experience changes in brain chemistry from extended exposure to fluoride which affects mood. Serotonin and the prefrontal cortex are impacted. Studies that only examine short-term exposure are inadequate to detect these changes which are more pronounced in females.
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BRAIN DAMAGE: Prenatal & postnatal animal experiment using 10, 50 and 100 mg/L to simulate human experience documents mitochondrial damage and neuronal death as mechanism that result in learning and memory impairments.
https://www.ncbi.nlm.nih.gov/pubmed/30659323

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IODINE: Identifies and discusses the biochemical and hormonal impact of fluoride and fluoridation policy on iodine metabolism with consideration of related neurodevelopmental and pathological disorders. https://www.mdpi.com/1660-4601/16/6/1086

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BIOLOGY OF POISON: Deep dive into the biological impact of fluoride that affects metabolism, hormones, immune function, etc. “Moreover, the findings of this study further suggest that there are windows of susceptibility over the life course where chronic F exposure in pregnancy and early infancy may impair Na+ , K+ -ATPase activity with both short- and long-term implications for disease and inequalities in health.” https://www.mdpi.com/1660-4601/16/8/1427

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DOSE RESPONSE: Three month study on adult rats found “fluoride can impair the learning ability of rats, which may be related to the induction of autophagy in rat hippocampal neurons.” https://www.ncbi.nlm.nih.gov/pubmed/31111310

- Zhang C, Huo S, Fan Y, Gao Y, Yang Y, Sun D. Autophagy May Be Involved in Fluoride-Induced Learning Impairment in Rats. Biol Trace Elem Res. 2019 May 20.

GENETIC SUSCEPTIBILITY: Review of recent scientific literature on biological impact. Same exposure in same population affect individuals differently, suggesting genetic vulnerability. https://onlinelibrary.wiley.com/doi/full/10.1111/jcmm.14185

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MITOCHONDRIA: Prenatal and postnatal exposure to fluoride results in mitochondrial abnormalities, autophagy and apotheosis contributing to neuronal death.
https://www.NCBI.nlm.nih.gov/pubmed/30659323

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NUTRITION: The f-ion is a poison but the bioavailability of CaF is different than NaF as calcium is the antidote to fluoride poisoning. In addition to being in water and dental products, 20% of pharma and 40% of agrichemicals have a fluoride base. Consequently, people are exposed to excessive amounts of fluoride which contributes to chronic disease.
https://journals.matheo.si/index.php/ACSi/article/view/4932/2095

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SYNERGY, SUSCEPTIBILITY & TSCA: Accurately identifying highly exposed groups and the intrinsic and extrinsic factors that affect susceptibility require adequately assessing the aggregate exposure among vulnerable groups. The 2016 Lautenberg update to the 1976 Toxic Substance Control Act (TSCA) requires performing a challenging and scientifically disciplined risk assessment that mitigates risk, such as calculating the impact of combined fluoride exposure from fluoridated pesticides in food and fluoridated water on young children.
https://www.ncbi.nlm.nih.gov/labs/pmc/articles/PMC6715167/

- Koman PD, Singla V, Lam J, Woodruff TJ. Population susceptibility: A vital consideration in chemical risk evaluation under the Lautenberg Toxic Substances Control Act. PLoS Biol. 2019 Aug 29;17(8):e3000372.

2018

THYROID: 18% of people drinking 'optimally' fluoridated water in Canadian communities have a heightened risk of low thyroid function because fluoride interferes with iodine metabolism. Many of them will be sub-clinical and not know they are mildly hypothyroid, which nevertheless increases their risk for diabetes, high cholesterol, and other problems. Study excluded those already diagnosed with thyroid disease. (CHMS)
https://www.sciencedirect.com/science/article/pii/S016041201830833X

- Ashley J. Malin, Julia Riddell, Hugh McCague, Christine Till. Fluoride exposure and thyroid function among adults living in Canada: Effect modification by iodine status. Environment International. Volume 121, Part 1, December 2018, Pages 667-674.

THYROID: Even 0.5 ppm fluoride in water has an adverse impact on thyroid hormones. Water is currently fluoridated to 0.7 ppm, a reduction from up to 1.2 ppm in 2015.
https://www.NCBI.nlm.nih.gov/pmc/articles/PMC5805681/

- Z. Kheradpisheh et al. (2018) Impact of Drinking Water Fluoride on Human Thyroid Hormones: A Case-Control Study. Scientific Reports. volume 8.

OVERDOSED BABIES: Over one third of babies (37%) in fluoridated American communities consume amounts of fluoride in excess of the upper limits of fluoride considered safe per government regulations. Even 4% of babies in non-fluoridated communities are overdosed on fluoride due to consumption of products made with fluoridated water. At the very least, this puts these children at high risk for developing dental fluorosis. Dental fluorosis is associated with increased incidence of learning disabilities, broken bones and kidney disease.
http://jocpd.org/doi/10.17796/1053-4625-43.1.7

- Claudia X Harriehausen, Fehmida Z Dosani, Brett T Chiquet, Michelle S Barratt, and Ryan L Quock. Fluoride Intake of Infants from Formula. Journal of Clinical Pediatric Dentistry. 2018.

GOVERNMENT BIAS: A National Toxicology Program animal experiment studying the impact of fluoride consumption used the wrong rats, the wrong dose, and the wrong study design in order to manufacture a finding of no prenatal or postnatal effect.
https://www.sciencedirect.com/science/article/pii/S0306987718308600

- Karen Favazza Spencer, Hardy Limeback. Blood is Thicker Than Water: Flaws in a National Toxicology Program Study. Medical Hypotheses. Volume 121. December 2018. Pages 160-163.

PREGNANT WOMEN: Pregnant Canadian women drinking 'optimally' fluoridated water had twice the fluoride exposure per individual testing as compared to pregnant women in non-fluoridated Canadian communities - and consistent with the range in the Mexican women in the ELEMENT cohort whose children had up to 6 points lowered IQ based on prenatal exposure to fluoride (from salt). The Canadian study excluded those with health conditions such as kidney disease as well as considered confounding factors such as tea consumption. https://ehp.niehs.nih.gov/doi/pdf/10.1289/EHP3546

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LEARNING DISABILITIES: Over 200 children were individually tested. Study found attention deficit disorder apparently caused by their prenatal exposure to fluoride specific to dose. This is the 3rd report out of the NIH sponsored 12 year ELEMENT project that has confirmed low dose prenatal exposure to fluoride consistent with exposure in 'optimally' fluoridated communities causes subtle but permanent brain damage for many consumers. Excluded those with history of mental illness or conditions such as diabetes and renal disease. https://www.sciencedirect.com/science/article/pii/S0160412018311814

- Morteza Bashash, Maelle Marchand, Howard Hu, ChristineTill, Angeles Martinez-Mier, Brisa N. Sanchez, Niladri Basu, Karen Peterson, Rivka Green, Lourdes Schnaas, Adriana Mercado-García, Mauricio Hernández-Avila, Martha María Téllez-Rojo. Prenatal fluoride exposure and attention deficit hyperactivity disorder (ADHD) symptoms in children at 6–12 years of age in Mexico City. Environment International. Volume 121, Part 1, December 2018, Pages 658-666.

ALZHEIMER'S DISEASE: Describes impact of fluoride-induced stress and inflammation in the development of Alzheimer's disease and demonstrates the mechanism for cell death in its worsening over time. https://www.mdpi.com/1422-0067/19/12/3965

- Goschorska M, et al. Potential Role of Fluoride in the Etiopathogenesis of Alzheimer's Disease. Int. J. Mol. Sci. 2018, 19 (12), 3965.

CANCER: Researchers who include an IARC scientist find esophageal cancer is 9.4 times more prevalent among those with dental fluorosis in the endemic fluorosis regions of Kenya. Provides biological plausibility that inflammatory fluoride affects microbiome and other biological mechanisms. Recommends more study. https://www.ncbi.nlm.nih.gov/pubmed/30582155/

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KIDNEYS: Fluoride is a common exposure that is selectively toxic to the kidneys. https://www.sciencedirect.com/science/article/pii/S0270929518301827

- Lash LH. Environmental and Genetic Factors Influencing Kidney Toxicity. Seminars in Nephrology. Volume 39, Issue 2, March 2019, Pages 132-140.

IQ & DF: Between 0.5 and 3.9 mg/L, found every 0.1 mg/L increased dental fluorosis by 2.24% and every 0.5 mg/L decreases IQ by 2.67 points. Also found half as many kids with high IQ children with higher F- dose. https://www.NCBI.nlm.nih.gov/pubmed/29870912

- Yu X et al. Threshold effects of moderately excessive fluoride exposure on children's health: A potential association between dental fluorosis and loss of excellent intelligence. Environ Int. 2018 Jun 2;118:116-124.

WORSE THAN ARSENIC: "In conclusion, F exposure was related to the urinary excretion of early kidney injury biomarkers, supporting the hypothesis of the nephrotoxic role of F exposure." https://www.sciencedirect.com/science/article/pii/S0041008X18302382

- Monica I. Jiménez-Córdova, Mariana Cardenas-Gonzaleza, Guadalupe Aguilar-Madrid, Luz C. Sanchez-Peña, Ángel Barrera-Hernández, Iván A. Domínguez-Guerrero, Carmen González-Horta, Olivier C. Barbier, Luz M. Del Razo. Evaluation of kidney injury biomarkers in an adult Mexican population environmentally exposed to fluoride and low arsenic levels. Toxicology and Applied Pharmacology. May 2018.

KIDNEY CASCADE: "Taken together, these findings indicate that there can be some alterations in liver enzyme activities at early stages of fluoride intoxication followed by renal damage." https://pubmed.ncbi.nlm.nih.gov/29769014/

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2017

REVIEW: Concludes that fluoridation schemes whether from water, food or salt programs "pose risks of various diseases in the asthmatic-skeletal, neurological, endocrine and skin systems. Dental and skeletal fluorosis are signs of chronic and excessive ingestion of fluoride." https://www.NCBI.nlm.nih.gov/pubmed/28453591

- Verena Romero, Frances J. Norris, Juvenal A. Ríos, Isel Cortés, Andrea González, Leonardo Gaete, Andrei N. Tchernitchin. The impact of tap water fluoridation on human health. Rev. méd. Chile vol.145 no.2 Santiago Feb. 2017.

DOSE-RESPONSE: Validated that IQs of children are lowered on a dose-response trend line correlated with the amount of fluoride exposure as measured via urine tests of their mothers during pregnancy and individualized IQ tests of offspring. In the range consistent with doses in optimally fluoridated communities, there was up to a 6 point difference in IQ. This NIH sponsored 12 year longitudinal study conducted by researchers at world class American & Canadian universities excluded diabetics as well as those with kidney disease or pregnancy complications and allowed for many confounders.
https://pubmed.ncbi.nlm.nih.gov/28937959/

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NOT COST EFFECTIVE: Reveals errors in cost-benefit analysis (CBA) used by CDC. Best case scenario after corrections is a $3 benefit which is more than wiped out by any consideration of dental fluorosis. Fluoridated drinking water results in an economic loss to communities. http://www.NCBI.nlm.nih.gov/pubmed/25471729

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Additional items of note:

2017 IAOMT Position Paper: https://iaomt.org/iaomt-fluoride-position-paper-2/
2018 Open Letter: http://www.multibriefs.com/briefs/icim/nutrition.pdf
2019 Children's Health Defense Statement: https://childrenshealthdefense.org/news/u-s-water-fluoridation-a-forced-experiment-that-needs-to-end/
2020 Expert Opinion: https://www.ehn.org/fluoride-and-childrens-health-2648120286.html

"…fluoride is presumed to be a cognitive neurodevelopmental hazard to humans…"
- Draft Monograph from National Toxicology Program, "Systematic Review of Fluoride Exposure and Neurodevelopmental and Cognitive Health Effects" (Sept 6, 2019)

"The cessation of all compulsory water fluoridation schemes should be the goal of all public health agencies, ethical lawmakers, and informed citizens."
- Prof. Rita F. Barnett-Rose, J.D. in "Compulsory Water Fluoridation" (2014)

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DEFINITIONS:

- **Endorsement**: An endorsement is an authoritative statement reflecting a point of view for the purpose of exerting influence. An endorsement is ***not*** an expert opinion.
  - **Authoritative statement:** An opinion that interprets a rule, law or policy for the purpose of guiding, influencing, or mandating action. Authoritative statements are not inherently trustworthy or reliable, but they are inherently manipulative. "Testimonial propaganda" utilizes authoritative statements in marketing and in politics. The slogan "question authority" was intended to encourage critical thinking in order to combat the blind acceptance of biased authoritative statements that endorse policy and/or sanctioned narratives. (*Logical Fallacies: Appeal to Authority*)
- **Expert Opinion**: An expert opinion is dependent on evidence and the due diligence of someone with substantial study in a field. The Daubert Standard is a legal process that validates the trustworthiness of experts offering opinion in a court of law.

EXAMPLES:

ENDORSEMENT: The April 2015 HHS statement recommending 0.7 ppm fluoride concentration in drinking water for 'safe & effective' prevention of tooth decay promoted the long standing fluoridation policy of the agency.

vs.

EXPERT OPINION: The June 2015 Cochrane report finds no reliable evidence of dental benefit to adults or low income children, but documents substantially higher rates of dental fluorosis, some of which will likely result in costly cosmetic dentistry.
The 2019 National Toxicology Program systematic review offered an expert opinion based on the evidence that fluoride is a presumed hazard to human health specific to neurotoxic impact when exposure is pre- or post-natal.

July 6, 2022

Sent via email to:

Dr. Fred Jenkins
nejac@epa.gov

Re: Public Comment Regarding EPA Investments (EPA-HQ-OA-2022-0053)

Dear Dr. Jenkins:

I am pleased to provide this public comment on behalf of Companions and Animals for Reform and Equity (CARE), a nonprofit organization committed to the interest of human and animal well-being. At CARE, we prioritize and amplify BIPOC and other marginalized voices using narratives, research, and community-centered investments. As the nation's only known organization with a division dedicated to environmental justice in the context of the human-animal relationship, we would like to thank the National Environmental Justice Advisory Commission for the opportunity to provide comments on the topic of EPA investments for addressing Environmental Justice.

Since Hurricane Katrina especially, an increased amount of attention has been dedicated to understanding how addressing the needs of companion animals facilitates greater access to critical services to those most likely to be impacted by environmental harms and devastation. According to one poll, as many as 44 percent of people who declined to evacuate during Katrina did so due to fear of abandoning their pets.[1] In the wake of this national disaster, the federal PETS Act was enacted, requiring that state and local emergency preparedness operational plans address, at least minimally, the needs of individuals with household pets and service animals following a major disaster or emergency.[2] Additionally, organizations such as the NAACP included animal

[1]https://www.washingtonpost.com/news/animalia/wp/2017/08/31/how-the-chaos-of-hurricane-katrina-helped-save-pets-from-flooding-in-texas/.
[2] Pub. L. 109– 295, 120 Stat. 1355 (2006), https://www.congress.gov/109/plaws/publ295/PLAW-109publ295.pdf.

sheltering and services among the key factors to be considered when building equity in emergency management.[3]

The importance of accounting for the presence of companion animals to facilitate environmental justice extends beyond natural disasters. As highlighted in a recent Iowa incident, an unhoused person was subjected to a lengthy prison sentence stemming from his dog's heat related death last summer, after walking for approximately a mile to find the animal food and water. Cooling shelters were reportedly not accepting companion animals, causing both lives to be placed at risk.[4] It has been noted that as many as 24 percent of the 3.5 million people experiencing homelessness have pets.[5] Many would rather refuse shelter and risk their lives in order to not be separated from their beloved companions. As recently as last year, more than 60 percent of people experiencing homelessness in San Francisco alone reported having a lack of access to drinking water. Moreover, a Coalition on Homelessness report listed "water for pets" as ranking among the top uses for water.[6] Additionally, the COVID-19 emergency laid bare many pre-existing inequities that are inherently connected to environmental justice. According to one NIH-published study, study participants' most cited reason for delaying healthcare was the lack of a concrete plan for pet care.[7] Presumably, similar concerns would be played out in the context of human health as it is impacted by everyday circumstances that are exacerbated by climate change and other environmental harm.

The above examples illustrate only a small number of scenarios in which the difference between receiving or being denied an environmentally just outcome depends upon the shared well-being of an animal. As noted in the above referenced NAACP toolkit, current "cost-benefit" analyses for disaster mitigation and prevention have been inefficient and costly, with Congress spending "almost 500 times more on disaster recovery than on actions to reduce or prevent disaster risks altogether."[8] Fortunately, evidence of more efficient and cost-effective policy efforts that adopt a holistic approach are beginning to emerge. The California Pet Assistance and Support Program, which provides up to $600,000 for homeless shelters seeking to reduce barriers to those

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[3] *See* In the Eye of the Storm Disaster Equity Toolkit, https://naacp.org/resources/eye-storm-peoples-guide-transforming-crisis-advancing-equity-disaster-continuum, pp. 56, 66.

[4]https://www.desmoinesregister.com/restricted/?return=https%3A%2F%2Fwww.desmoinesregister.com%2Fstory%2Fnews%2Fcrime-and-courts%2F2022%2F03%2F26%2Fhomeless-iowa-man-michael-beaver-couldnt-afford-vet-care-ill-dog-charged-animal-neglect%2F7026461001%2F.

[5]https://todaysveterinarynurse.com/ethics-welfare/can-the-veterinary-community-help-homeless-people-take-care-of-their-pets/#:~:text=According%20to%20the%20National%20Coalition,a%20pig%2C%20ferrets%20and%20reptiles.

[6] https://www.cohsf.org/water-report-2021/.

[7] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7543786/

[8]https://naacp.org/resources/eye-storm-peoples-guide-transforming-crisis-advancing-equity-disaster-continuum, p. 93.

experiencing homelessness with their pets, and the recently introduced federal Providing for Unhoused People with Pets (PUPP) Act of 2022[9] are two such examples.

In light of the increasing threats to environmental justice, we urge NEJAC to seek every opportunity to prioritize environmental justice investments into initiatives that make a deliberate effort to consider the needs of people living with animals. Doing so may mean the difference between life and death of those facing our most serious environmental challenges. We thank you again for this opportunity to comment and look forward to engaging in future forums.

Sincerely,

Akisha Townsend Eaton
Chief of Policy, Environmental Justice Division
akisha@careawo.org

[9] H.R. 8074, 117th Congress (2022), https://www.govinfo.gov/content/pkg/BILLS-117hr8074ih/pdf/BILLS-117hr8074ih.pdf.

Good afternoon, and greetings again from Tulsa, Oklahoma. I'm John Mueller, retired engineer, mainly in water resources engineering, and with a degree in geophysical engineering from the Colorado School of Mines. I am again presenting concerns about water fluoridation. But before going any further, I want to acknowledge and thank the NEJAC members for responding to these concerns presented during previous NEJAC public meetings, by myself and others, and thank you, Matt Tejada, for answering my questions in your NEJAC Community Engagement calls.

My comment today is largely spontaneous in response to Mr. Schafer's presentation on PFAS and PFOA contamination. We all know, or should know, that the "F" in those organic chemicals, is the fluoride atoms covalently bonded to the carbon atoms in those compounds. What makes them the "forever chemicals" that they are, is the strong bond which Wikipedia tells us is ". . one of the strongest single bonds in chemistry . ." and is ". . . the strongest in organic chemistry." One reason is that fluorine has the strongest electronegativity, an attractive force, of any element in the Periodic Table of the Elements. It's the same fluorine atom that helps give prescription drugs like Prozac and Lipitor their efficacies. In its ionic form, it is deliberately added to public water supplies, and is increasingly recognized by emerging scientific studies as being harmful to human health, affecting some of the same organs in our bodies as the PFAS and PFOA compounds, not only in Environmental Justice communities, but harm to the developing brains of the unborn fetus in pregnant mothers, of infants from formula reconstituted with fluoridated water, and young children swallowing fluoridated toothpaste. Fluoride is a developmental neurotoxicant, like lead, and is added as a medical treatment to help prevent tooth decay, with no control of human exposure other than what is added to the tap water miles upstream. It is unethical with no informed consent from those who have no choice but to drink that water. Tooth decay can be prevented with better diet and oral hygiene. Early brain damage is "a horse of a different color."

Accordingly, a specific NEJAC recommendation should include banning the deliberate addition of any fluoride chemical compound to public water supplies.

I will be submitting additional materials prepared by experts, including highly respected dentists. Thank you again for these unprecedented opportunities to contribute to improving public health in this still greatest of nations.

June 13, 2022

The Honorable Michael Regan
Administrator
Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460
regan.michael@epa.gov

Re: Urgent Call on the Environmental Protection Agency to Not Sunset its Online Archive

Dear Administrator Regan,

We write on behalf of the Environmental Data & Governance Initiative (EDGI) and the other undersigned organizations to oppose EPA's apparent plan to sunset its online archive in July 2022. While we understand that providing a public archive of many of the historical resources currently in EPA's online archive is voluntary, the removal of this information constitutes a backwards step in the agency's commitment to public trust, scientific integrity, and environmental justice. It reduces the public's ability to access important information about critical environmental issues, as well as past and present agency activities, policies, and priorities.

In a healthy democracy, the public needs to be able to trust information disseminated by its government. In the 21st century, websites are a primary way that federal agencies communicate with the public, and so the accuracy, accessibility, and transparency of information on federal agency websites matters. It is alarming, then, that the EPA plans to remove its online archive as this archive constitutes an important, albeit incomplete, public record of the agency's positions and activities over the last 20+ years.

The EPA Archive is a Critical Public Resource

The online EPA archive is a critical public resource. It hosts digital resources dating back to the 1990s, and these records allow for activities ranging from historical research to

democratic oversight. There are documents discoverable through the archive that are not available anywhere else, such as records of the authorization of various chemicals, monitoring data from natural disasters, and resources regarding past or proposed policies. Only through the EPA archive is it possible to trace public-facing EPA climate change information over the course of the escalating crisis, from the Clinton-era "Global Warming" website to the Obama-era "Climate Change" website.

Some resources in the archive are hosted in other repositories such as regulations.gov, but are more easily discoverable through keyword searches in the EPA archive. For example, the EPA archive is the most accessible source of information regarding the evolution of regulations for key toxins, such as the Clean Air Mercury Rule and the Mercury and Air Toxics Standards, as well as EPA's evolving approach to protecting wetlands.

The EPA archive also served as a critical source of information and lifeline for civic engagement when informational resources were suppressed on the main EPA website during the Trump administration and transferred to the archive, such as the Clean Power Plan (CPP) resources in the months before the proposal to repeal the CPP. EDGI recently used the archived CCP webpages that were suppressed in an educational workshop to teach undergraduate students about the importance of federal website governance in a participatory democracy.

While the EPA archive is far from perfect, it has facilitated public engagement and oversight and could be updated to be a model of more transparent and effective website governance. Moreover, maintaining and improving the archive would support the agency's outspoken commitments to scientific integrity and environmental justice, both of which pivot upon the agency's commitments to transparency, accessibility, and democratic oversight.

The Decision Lacks Transparency

The decision to sunset the EPA archive is itself evidence of the need for more transparent and effective governance of federal web resources. There were no public explanations or commenting period regarding this decision, and the links to further information on the "Web Standard: Archive" webpage are to URLs that deny access to the public (403 error). Information requests by our organization remain unanswered.

In an article in *The Verge*, the EPA provides reasons supporting its decision to sunset its archive. One is that the infrastructure on which the archive is built is outdated. We

appreciate the diligence and the care provided in updating the main EPA website to a more modern content management system, but it is unclear why the archive could not also be updated. We recognize that the EPA is substantially underfunded at the moment, but it would, at a minimum, be better to retain an archive based on outdated infrastructure than to remove public access to these resources entirely. Additionally, in the *Verge* article the EPA stated that official records removed from the archive would continue to be available through the Freedom of Information Act process. While we appreciate the degree of transparency the FOIA can provide, this process is by no means an open and accessible one. FOIAs require a level of pre-existing knowledge that much of the public doesn't have (it is challenging to file a FOIA for something you don't know exists), the arduous process of filing and then processing materials received through FOIA requests is itself a barrier to access, and the FOIA process has shortcomings when it comes to scientific materials in particular, which are beyond the scope of this letter.

Overall, the lack of transparency in the decision to sunset the EPA's archive is at odds with EPA's commitment to openness. This decision runs counter to the ethics and values embraced by entities such as the Society of American Archivists. Further, it leaves the public and the federal government dependent upon third-party non-governmental organizations that are not operating pursuant to federal data integrity and provenance policies to provide public archives of federally published information. Sunsetting the EPA archive does not appear to be in the best interest of the public nor the agency.

Improvements to the Archive

We understand that maintenance of a comprehensive archive of EPA's digital materials is voluntary and entails some costs. Yet this needs to be considered alongside the agency's commitment to public trust, scientific transparency, and environmental justice. Instead of doing away with the EPA archive, the Biden administration should promote it as a model for other parts of the Executive Branch.

In our digital age, agencies must make their documents and records quickly, thoroughly, and durably accessible to the public. We need the EPA's archive to be improved, not retired. It should link to archived historical content from the main website and to archived pages from defunct URLs. The search function should be improved to retrieve relevant results first and search within date ranges. Archiving material should be required, not discretionary. Agencies' Title 44 obligations must be modernized for the 21st century, with digital materials included alongside paper records, and EPA should coordinate its online archive with the Government Publishing Office, Library of Congress, and the National

Archives and Records Administration. Implementing these upgrades could facilitate democratic oversight and the rebuilding of public trust in the agency, while removing the archive undermines both. Thank you for considering our views.

Respectfully signed by the following organizations,

Council on Library and Information Resources
Environmental Data and Governance Initiative
FracTracker Alliance
Free Government Information
Government Accountability Project
Government Information Watch
Government Records Section Steering Committee, Society of American Archivists
Internet Archive
Lakehead University Archives
Metadata and Digital Objects Section, Society of American Archivists
Northwest Progressive Institute
Open The Government
Pratt Institute
Public Employees for Environmental Responsibility
Sierra Club
Southern Environmental Law Center
Southern Oregon University's Hannon Library
Texas State University Albert B. Alkek Library
The Digital Democracy Project
Union of Concerned Scientists
University of Southern California Libraries

Also please see this growing list of individuals and organizations who express their agreement with the requests made in this letter: https://tinyurl.com/htzz5su5.

Michigan Study - Grand Rapids

OPTIONAL FORM NO. 10
5010-104

UNITED STATES GOVERNMENT

Memorandum

TO : Chief, Disease Control Branch
Division of Dental
Public Health and Resources

DATE: January 10, 1962

Refer to: DPR-DC

FROM : Sanitary Engineer Director
Division of Dental Public Health and Resources

SUBJECT: Optimum Fluoride Levels

Dr. Russell told me today that negroes in Grand Rapids had twice as much fluorosis as others - (indices of 0.15 vs 0.35). In a community with a larger number of negroes (say in Dekalb County, Georgia) would this tend to change our optimum fluoride levels? Would this obsevatin indicate more studies in case opponents use this finding?

F. J. Maier

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Associations of low level of fluoride exposure with dental fluorosis among U.S. children and adolescents, NHANES 2015–2016

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ARTICLE INFO

Edited by Dr. Caterina Faggio

Keywords:
Fluoride
Dental fluorosis
Tap water
Plasma
Drinking water fluoridation

ABSTRACT

Drinking water fluoridation was a mid-twentieth century innovation based on the medical hypothesis that consuming low doses of fluoride at the teeth forming years provided protection against dental decays. Numerous studies showed that high level exposure to fluoride could cause dental and skeleton fluorosis. However, there was limited study focusing on the fluorosis effect of low levels of exposure to fluoride. Therefore, our study aimed to examine whether the low level of fluoride exposure (measured in blood plasma and household tap water) was associated with the risk of dental fluorosis based on data of the National Health and Nutrition Examination Survey (NHANES) 2015–2016. We analyzed data in 2098 children and adolescents who had Dean's Index scores, and water and plasma fluoride measures. The Dean's Index score was measured by calibrated dental examiners using the modified Dean's fluorosis classification system. Fluoride was measured in plasma and household tap water. In this study, we found that the rate of fluoride concentration in water above the recommended level of 0.7 mg/L was 25%, but the prevalence of dental fluorosis was 70%. Binary logistic regression adjusted for covariates showed that higher water fluoride concentrations (0.31–0.50, 0.51–0.70, > 0.70 compared 0.00–0.30) were associated with higher odds of dental fluorosis (OR = 1.48, 95% CI: 1.13–1.96, p = 0.005; OR = 1.92, 95% CI: 1.44–2.58, $p < 0.001$, and OR = 2.30, 95% CI: 1.75–3.07, $p < 0.001$, respectively). The pattern of regression between plasma fluoride and dental fluorosis was similar. Inclusion, our study showed that even low level of water or plasma fluoride exposure was associated with increased the risk of dental fluorosis. The safety of public health approach of drinking water fluoridation for global dental caries reduction are urgently needed further research.

1. Introduction

Fluoride is the ionic form of the naturally occurring fluorine element. People can consume adequate amounts of fluoride from fluoridated water, foods and beverages, and toothpaste and other dental products containing fluoride (Buzalaf, 2018; Levy et al., 2001). The anion increases the structural stability of teeth and bones through interactions with calcium phosphates (Bronckers et al., 2009). Oral exposure to fluoride primarily via consumption of fluoridated water has been shown to be associated with decreased prevalence of dental caries in children Featherstone, 1999). In response to these findings, community water fluoridation programs were developed to add fluoride to drinking water for preventing tooth decay. In 1962, the U.S. Public Health Service recommended fluoride concentrations in water of 0.7–1.2 mg/L to prevent dental decay (U.S. Department of Health and Human Services Federal Panel on Community Water Fluoridation, 2015).

Exposure to excessive fluoride levels can result in dental fluorosis, characterized by increased porosity of the subsurface enamel and well mineralized surface layer of the enamel. The water fluoride level of 2.0 mg/L is reported to be the threshold that can cause severe dental fluorosis in U.S. children (Selwitz et al., 1998), whereas Rango et al. (2014) found that the children barely had severe dental fluorosis with water fluoride concentrations < 4.0 mg/L in Ethiopian. Although with different thresholds of fluoride level for dental fluorosis, all these studies have confirmed high fluoride exposure can cause dental fluorosis (Ayoob and Gupta, 2006). However, the evidence on the potentially harmful effects of chronic exposure to low level of fluoride on children's dental development is relatively insufficient.

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Available online 22 June 2021

In many countries, small amounts of fluoride were added to drinking water, salt, or milk to reduce incidence of tooth decay. In the U.S., fluoridation of public water supplies was started in 1945 (U.S. Department of Health and Human Services Federal Panel on Community Water Fluoridation, 2015). Recent years, studies showed that the prevalence of dental fluorosis was increasing after water fluoridation programs (Neurath et al., 2019; Wiener et al., 2018). A more recent analysis of NHANES data in 200–2002 and 2011–2012 found that prevalence of dental fluorosis increased from 29.7% to 61.3% (Wiener et al., 2018). So, water fluoridation has become a controversial public health intervention these years (Peckham and Awofeso, 2014; Spencer and Limeback, 2018). In order to minimize the unwanted effect caused by water fluoridation, more research might be needed to reevaluate the current policy on water fluoridation programs.

In the U.S., fluoridation is not required by the U.S. Environmental Protection Agency (EPA), which is prohibited by the Safe Drinking Water Act from requiring the addition of any substance to drinking water for preventive health care purposes. The Centers for Disease Control and Prevention (CDC), which is one of the major operating components of HHS, provides recommendations about the optimal levels of fluoride in drinking water. A large number of studies have reported that adequate fluoride intakes can reduce the risk of dental decays (Iheozor-Ejiofor et al., 2015; Slade et al., 2018), but more and more studies showed that low level of fluoride exposure was also related with some adverse effects, such as neurotoxic to children (Agalakova and Nadei, 2020; Bai et al., 2020; Bashash et al., 2017; Malin et al., 2019a,b). They showed that low level of fluoride exposure was related with decreased IQ scores in children (Agalakova and Nadei, 2020). Another study also reported fluoride from chronic systemic exposure accumulates highly in the pineal gland, which might contribute to changes in sleep cycle regulation and sleep behaviors (Malin et al., 2019a). Dental fluorosis was the most common adverse effect caused by excessive fluoride exposure, but the dose-effect relationship between low level of fluoride and dental fluorosis were still unclear. Therefore, our study aimed to examine whether the recommend fluoride exposure (measured in blood plasma and household tap water) was still associated with dental fluorosis. This study is helpful to understanding the adverse effects of fluoride exposure and balancing the benefits with any potential risks.

2. Materials and methods

2.1. Participants

This study utilized data from the National Health and Nutrition Examination Survey (NHANES) collected from 2015 to 2016, which included both dental fluorosis clinical assessment and fluoride biomonitoring data. The NHANES is conducted biennially to collect the nationally representative sample by the Centers for Disease Control and Prevention and designed to assess health and nutrition status of people of all ages living in the U.S. Details of the NHANES research procedures are available on the NHANES website (Centers for Disease Control and Prevention, 2020). In the use of the data, we have completely followed the “data use restrictions” (Centers for Disease Control and Prevention, 2021) and ensured the data only used for statistical analysis or reporting purposes.

Dental fluorosis clinical assessment was assessed among 3478 participants aged 6–29 years. Plasma fluoride concentrations were measured among 2547 participants aged 6–19 years and tap water fluoride concentrations were measured among 4070 participants aged 0–19 years. Our analysis included children and adolescents aged 6–19 years because these participants had both fluoride measurements and dental fluorosis assessments. Our sample included participants who had fluoride measurements, dental fluorosis assessment and complete data for all covariates and outcomes. There were 2098 participants who met inclusion criteria for analyses. Of those, 1808 participants had plasma fluoride levels and 2071 participants had water fluoride levels. Participant selection was depicted in Fig. S1. Supplemental Table S1 compared demographic characteristics of the current overall study sample (n = 2098) and all participants ages 6–19 over the same years (NHANES 2015–2016).

2.2. Dental fluorosis assessment

The dental fluorosis clinical assessment was conducted at the NHANES mobile examination center (MEC) by dental examiners, who were dentists (D.D.S. or D.M.D.) licensed in at least one U.S. state. Each tooth was scored according to the Dean’s Fluorosis Index (DFI) and assigned one of the DFI disease severity categories, based on the area of the tooth surface with visible fluorosis and presence of pitting (NHANES Dental Examiners Procedures Manual, 2016). Six categories were used for tooth assessment: normal (translucent, smooth, glossy, pale creamy white, DFI = 0), questionable (slight aberrations, a few white spots, DFI = 0.5), very mild fluorosis (less than 25% of tooth has small, white areas, DFI = 1), mild fluorosis (between 25% and 50% of the tooth has white areas, DFI = 2), moderate fluorosis (50% or more of the tooth with all surfaces involved, with or without brown stains, DFI = 3), or severe fluorosis (all enamel is involved and has discrete or confluent pitting, DFI = 4) (NHANES Dental Examiners Procedures Manual, 2016). Missing teeth, deciduous (primary) teeth, permanent teeth not fully erupted, and teeth in which more than one-half of the visible surface area was obscured by a restoration, caries, or orthodontic appliance were not assessed. A tooth having a non-fluoride opacity was assessed as non-fluoride opacity. The basis for classifying a person’s fluorosis status was the categorization of the two most affected teeth. The lesser affected tooth was to be used to identify the person’s status if the two most affected teeth were not equally affected (NHANES Dental Examiners Procedures Manual, 2016).

2.3. Plasma fluoride measures

Plasma fluoride levels were influenced by many factors, including total fluoride intake, type of intake, renal function, rate of metabolism, etc. Fluoride concentrations were measured in blood plasma samples (Centers for Disease Control and Prevention, 2017b). Plasma samples were processed, stored, and shipped to the College of Dental Medicine, Georgia Regents University, Augusta, GA for analysis. The ion-specific electrode and hexamethyldisiloxane (HMDS) method was used to measure the plasma fluoride concentrations. Plasma fluoride was measured in duplicate using the same sample and the average of two results was employed. The lower limit of detection (LLOD) for plasma fluoride was 0.25 nmol. Approximately 68.76% (1475/2145) of detected participants in NHNES 2015–2016, had values at or above the LLOD for plasma fluoride. For analytes with analytic results below LLOD, an imputed fill value (0.18), which was the LLOD divided by the square root of 2, was assigned in the analyte results field.

2.4. Water fluoride measures

Fluoride concentrations in water samples were measured electrometrically using the ion-specific electrode (Centers for Disease Control and Prevention, 2017a). Water samples are processed, stored, and shipped to the College of Dental Medicine, Georgia Regents University, Augusta, GA for analysis. Water fluoride was measured in duplicate using the same sample and the average of two results was employed. The lower limit of detection (LLOD) for water fluoride was 0.1 mg/L. Approximately 87.66% (3495/3987) of detected participants in NHNES 2015–2016, had values at or above the LLOD for water fluoride. For analytes with analytic results below LLOD, an imputed fill value (0.07), which was the LLOD divided by the square root of 2, was assigned in the analyte results field.

2.5. Covariates

Covariates were determined according to the prior empirical evidence associated with fluoride exposure and dental fluorosis. They included: age, gender, body mass index, race/ethnicity, the ratio of family income to poverty, and season of sample collection. Questionnaires were used to collect demographic of age (yrs.), sex (male, female), race/ethnicity (Mexican American, other Hispanic, non-Hispanic White, non-Hispanic Black, non-Hispanic Asian, other race), six-month time period when surveyed (November 1 through April 30, May 1 through October 31) and the ratio of family income to poverty. BMI and BMI categories (underweight, normal weight, overweight, and obese) were collected from body measure data.

2.6. Statistical analyses

Means and proportions were calculated for descriptive analyses of demographic variables as well as fluoride exposure and dental fluorosis measures. A Pearson correlation examined the relationship between logarithm (base 10)-transformed plasma and water fluoride concentrations. Dental fluorosis was identified according to DFI score, which was defined no fluorosis (DFI $\leq$ 0.5) and fluorosis (DFI $\geq$ 1). To examine the relationship between water fluoride exposure and dental fluorosis, water fluoride (mg/L) levels was transformed into a 4-category variable, which was: 0.00–0.30 (0 = reference level), 0.31–0.50 (1 = level 1), 0.51–0.70 (2 = level 2), and > 0.70 (3 = level 3). To examine the relationship between plasma fluoride exposure and dental fluorosis, plasma fluoride (μmol/L) levels was transformed into a 4-category variable, which was: 0.00–0.30 (0 = reference level), 0.31–0.40 (1 = level 1), 0.41–0.50 (2 = level 2), and > 0.50 (3 = level 3). Binary logistic regression analyses were used to determine the association between fluoride exposure and the occurrence of dental fluorosis, controlling for age, sex, race/ethnicity, BMI categories, the ratio of family income to poverty and six-month time period when surveyed. Data analysis was conducted with r software (R version 4.0.2). The two-sided p values < 0.05 were statistically significant.

3. Results

3.1. Demographic characteristics

Demographic characteristics were presented in Table 1. Table S1 compared demographics between current study participants and all participants aged 6–19 years in NHANES 2015–2016. The number of overall group was 2098 with an average age of 12.19 years, including 1054 boys and 1044 girls. Among the 2098 participants, 1808 subjects had plasma fluoride concentrations and 2071 had water fluoride concentrations. The proportions of subjects in variables including age categories, sex, BMI categories, race, six-month time period when surveyed, were similar across overall group, plasma fluoride sample group, and water fluoride sample group.

3.2. Fluoride levels

Descriptive statistics for water fluoride levels and plasma fluoride levels were presented in Table 2. Geometric mean of household tap water fluoride concentration was 0.33 mg/L, which was below the U.S. Public Health Service recommended concentration of 0.7 mg/L (U.S. Department of Health and Human Services Federal Panel on Community Water Fluoridation, 2015). However, values between the 75th and 95th percentiles were above this level ranging from 0.71 to 1.02 mg/L. The water fluoride concentrations in males were comparable with those in females, but fluoride levels in plasma in males were higher than those in females (Table 2, Fig. S2). Both the water and plasma fluoride levels in children were higher than those in adolescents (Table 2, Fig. S3). Fluoride concentrations in plasma and tap water were light positively correlated (r = 0.41, p < 0.001), which presented in Fig. 1. The correlation patterns in subgroups males and females were similar (Fig. S4).

Table 1
Demographic characteristics of selected samples in NHANES 2015–2016.

Demographic characteristic	Overall sample n = 2098	Plasma fluoride sample n = 1808	Water fluoride sample n = 2071
Age (yrs.); mean (SD)	12.19 (3.77)	12.37 (3.78)	12.18 (3.77)
Age categories; N (%)			
Children (6–11 yrs.)	995 (47.43%)	819 (45.30%)	985 (47.56%)
Adolescents (12–19 yrs.)	1103 (52.57%)	989 (54.70%)	1086 (52.44%)
Sex; N (%)			
Male	1054 (50.24%)	917 (50.72%)	1038 (50.12%)
Female	1044 (49.76%)	891 (49.28%)	1033 (49.88%)
BMI; mean (SD)	21.88 (6.02)	22.12 (6.13)	21.88 (6.02)
BMI Categories; N (%):			
Underweight	57 (2.72%)	44 (2.43%)	56 (2.70%)
Normal Weight	1203 (57.34%)	1029 (56.91%)	1186 (57.27%)
Overweight	374 (17.83%)	328 (18.14%)	369 (17.82%)
Obese	464 (22.12%)	407 (22.51%)	460 (22.21%)
Race/ethnicity			
Mexican American; N (%)	456 (21.73%)	417 (23.1%)	451 (21.78%)
Other Hispanic	254 (12.11%)	232 (12.8%)	250 (12.07%)
Non-Hispanic White	612 (29.17%)	519 (28.7%)	601 (29.02%)
Non-Hispanic Black	461 (21.97%)	376 (20.8%)	457 (22.07%)
Non-Hispanic Asian	181 (8.63%)	158 (8.7%)	179 (8.64%)
Other Race-Including Multi-Racial	134 (6.39%)	106 (5.9%)	133 (6.42%)
Ratio of family income to poverty; mean (SD)	2.06 (1.49)	2.03 (1.48)	2.05 (1.49)
Six month time period when surveyed			
November 1 through April 30	984 (46.90%)	851 (47.1%)	972 (46.93%)
May 1 through October 31	1114 (53.10%)	957 (52.9%)	1099 (53.07%)

3.3. Dental fluorosis

The proportion of dental fluorosis severity by different fluoride levels in drinking water and plasma was presented in Tables 3 and 4. Generally, the proportion of participants had normal teeth was relatively low, which was just 13%. Compared with the lowest fluoride level group, severity of fluorosis increased with higher exposure to fluoride, although there were a few exceptions. For example, those exposed to > 0.70 mg/L of water fluoride had less severe fluorosis than those exposed to 0.00–0.30 mg/L (Table 4), which might just because the number of participants with severe fluorosis was too less.

3.4. Regression analysis between fluoride levels and dental fluorosis

Regression results for fluoride levels and fluorosis were presented in Table 5 and adjusted variables in the regression were presented in Tables S4 and S5. Binary logistic regression adjusted for covariates showed that higher water fluoride concentrations (0.31–0.50, 0.51–0.70, > 0.70 compared 0.00–0.30) were associated with higher odds of dental fluorosis (OR = 1.48, 95% CI: 1.13–1.96, p = 0.005; OR = 1.92, 95% CI: 1.44–2.58, p < 0.001, and OR = 2.30, 95% CI: 1.75–3.07, p < 0.001, respectively). The pattern of regression between plasma fluoride and dental fluorosis was similar, which showed the higher plasma fluoride concentrations (0.31–0.40, 0.41–0.50, > 0.50 compared 0.00–0.30) were associated with higher odds of dental fluorosis (OR = 1.49, 95% CI: 1.14–1.96, p = 0.004; OR = 1.61, 95% CI: 1.15–2.29, p = 0.007, and OR = 1.64, 95% CI: 1.18–2.28, p = 0.003, respectively). We also further explored regression analysis for fluoride levels and

Table 2
Descriptive statistics of fluoride exposure levels.

Measure	Number	Arithmetic mean (standard deviation)	Geometric mean	Median	5th percentile	25th percentile	75th percentile	95th percentile
Water fluoride (mg/L)								
All	2071	0.46 (0.40)	0.33	0.44	0.07	0.16	0.70	1.02
Male	1038	0.48 (0.41)	0.33	0.44	0.07	0.16	0.70	1.04
Female	1033	0.47 (0.38)	0.33	0.44	0.07	0.17	0.69	1.00
Children	985	0.52(0.44)	0.36	0.47	0.07	0.18	0.72	1.12
Adolescents	1086	0.43(0.35)	0.31	0.37	0.07	0.15	0.68	0.86
Plasma fluoride (μmol/L)								
All	1808	0.35 (0.22)	0.31	0.30	0.18	0.18	0.41	0.71
Male	917	0.36 (0.19)	0.32	0.32	0.18	0.18	0.43	0.70
Female	891	0.34 (0.25)	0.29	0.29	0.18	0.18	0.39	0.71
Children	819	0.38 (0.24)	0.33	0.33	0.18	0.25	0.45	0.73
Adolescents	989	0.32 (0.20)	0.29	0.28	0.18	0.28	0.38	0.66

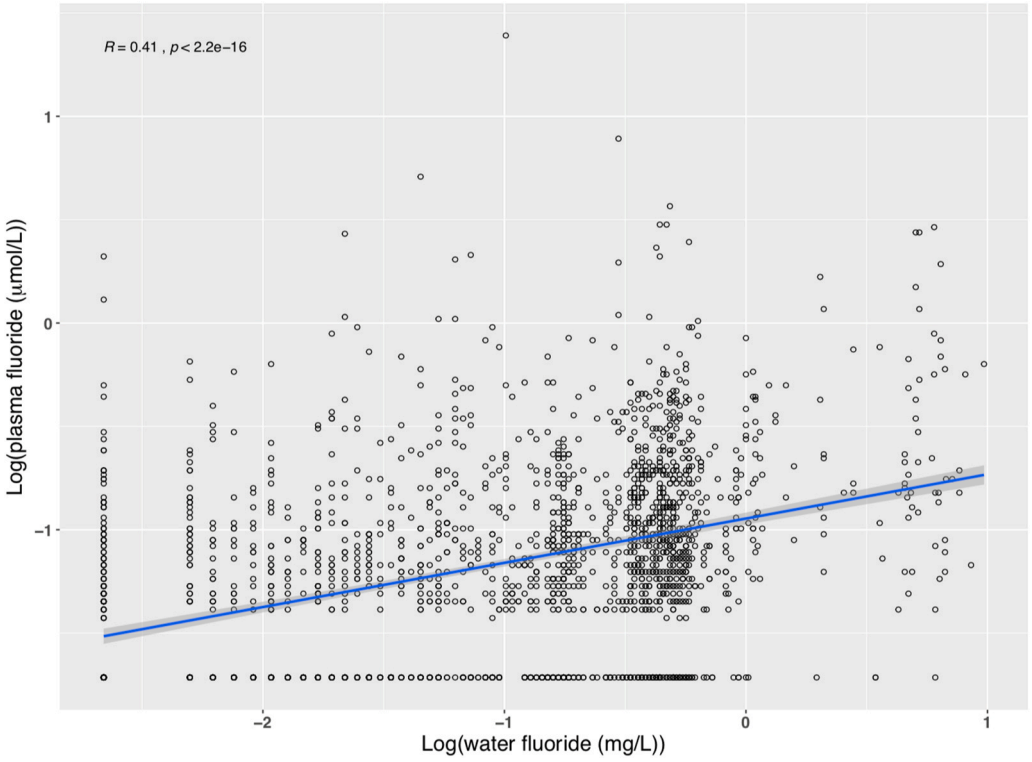

Fig. 1. Pearson's correlations between log 10-transformed water fluoride and plasma fluoride (n = 2107).

Table 3
Number and frequency (percent) of Dean's Index score for children aged 6–19 years in the 3 sample groups.

	Fluorosis severity level					
	Normal (DFI = 0)	Questionable (DFI = 0.5)	Very mild (DFI = 1)	Mild (DFI = 2)	Moderate (DFI = 3)	Severe (DFI = 4)
Overall sample n = 2098	288 (13.73)	348 (16.59)	1223 (58.29)	202 (9.63)	34 (1.62)	3 (0.14)
Water fluoride sample n = 2071	285 (13.76)	346 (16.71)	1206 (58.23)	197 (9.51)	34 (1.64)	3 (0.14)
Plasma fluoride sample n = 1808	243 (13.44)	297 (16.43)	1054 (58.30)	181 (10.01)	30 (1.66)	3 (0.17)

fluorosis by age (Table S2) and gender (Table S3). The patterns of regression results in children (aged 6–11 years) and adolescents (aged 12–19 years) were similar, but the patterns in different gender were changed. Higher plasma fluoride concentrations were associated with higher odds of dental fluorosis in females, but the associations in male groups were almost disappeared (Table S3).

4. Discussion

No fluoride deficiency disease had ever been documented for humans. However, municipal fluoridation was a mid-twentieth century innovation based on the medical hypothesis that consuming low doses of fluoride at the teeth forming years provided protection against dental decays. In this study, we found that the rate of fluoride concentration in water above the recommended level of 0.7 mg/L was 25%, but the prevalence of dental fluorosis was 70% in the NHANES 2015–2016 survey, which was higher than that in the previous 2010–2012 survey of 65% (Neurath et al., 2019). The rate of combined moderate and severe degrees was relatively low with 1.8%. To accurately assess the impact of low levels of fluoride exposure on children and adolescents, we selected

Table 4
Number and distribution (percent) of fluorosis severity level by different fluoride levels in drinking water and plasma.

	Fluorosis severity level						
	Normal (DFI = 0)	Questionable (DFI = 0.5)	Very Mild (DFI = 1)	Mild (DFI = 2)	Moderate (DFI = 3)	Severe (DFI = 4)	Total
Water fluoride (mg/L)							
0.00–0.30	134 (15.46)	198 (22.84)	483 (55.71)	39 (4.50)	11 (1.27)	2 (0.23)	867 (41.86)
0.31–0.50	68 (19.21)	42 (11.86)	186 (52.54)	51 (14.41)	7 (1.98)	0 (0.00)	354 (17.09)
0.51–0.70	29 (7.83)	61 (16.49)	241 (65.14)	31(8.38)	7 (1.89)	1 (0.27)	370 (17.87)
> 0.70	54 (11.25)	45 (9.38)	296 (61.67)	76 (15.83)	9 (1.88)	0 (0.00)	480 (23.18)
Total	285 (13.76)	346 (16.71)	1206 (58.23)	197 (9.51)	34 (1.64)	3 (0.14)	
Plasma fluoride (μmol/L)							
0.00–0.30	136 (14.66)	179 (19.29)	533 (57.44)	65 (7.00)	14 (1.51)	1 (0.11)	928 (51.33)
0.31–0.40	50 (12.38)	57 (14.11)	247 (61.14)	45 (11.14)	4 (1.00)	1 (0.25)	404 (22.35)
0.41–0.50	28 (12.73)	28 (12.73)	131 (59.55)	27 (12.27)	5 (2.27)	1 (0.45)	220 (12.17)
> 0.50	29 (11.33)	33 (12.89)	143 (55.86)	44 (17.19)	7 (2.73)	0 (0.00)	256 (14.16)
Total	243 (13.44)	297 (16.43)	1054 (58.30)	181 (10.01)	30 (1.66)	3 (0.17)	

Table 5
Associations between water fluoride, plasma fluoride and occurrence of dental fluorosis.[ab]

Fluoride levels	n	Fluorosis[a]	
		Odds ratio (95%CI)	*p*-value
Water fluoride (mg/L)			
0.00–0.30	867	Reference	
0.31–0.50	354	1.48 (1.13–1.96)	0.005**
0.51–0.70	370	1.92 (1.44–2.58)	< 0.001**
> 0.70	480	2.30 (1.75–3.07)	< 0.001**
Plasma fluoride (μmol/L)			
0.00–0.30	928	Reference	
0.31–0.40	404	1.49 (1.14–1.96)	0.004**
0.41–0.50	220	1.61 (1.15–2.29)	0.007**
> 0.50	256	1.64 (1.18–2.28)	0.003**

** $p < 0.01$.
[a] Fluorosis: 0 = No fluorosis (DFI ≤ 0.5); 1 = Fluorosis (DFI ≥ 1).
[b] Regression analyses were adjusted for age, sex, race/ethnicity, body mass index categories, ratio of family income to poverty, and six month time period when surveyed. The regression analysis was carried out separately for water fluoride and plasma fluoride.

both water fluoride and plasma fluoride as external and internal exposure indicators, respectively, and observed that the levels of both were positively associated with the increased risk of dental fluorosis.

People of different ages have different excretion rates of fluoride. For adults, about 50% of absorbed fluoride is retained, and stored in bones and teeth. The other 50% is excreted in urine (VidaZohoori and MarslandDuckworth, 2017). However, in young children, up to 80% of absorbed fluoride is retained because of the more need for the development of the body (Whitford, 1999). In our study, we found that the concentration of plasma fluoride in children was higher than that in adolescents, which could be contributed by the less excretion fluoride in children. But there was a strange result that the water fluoride concentration in children was also higher than that in adolescents, which also contributed the higher level of plasma fluoride in children. As more and more researches had indicated that even low-to-moderate exposure to fluoride was related to a number of adverse health effects in children, such as neurotoxicity (Agalakova and Nadei, 2020; Green et al., 2019; Spencer and Limeback, 2018), changes in sleep cycle (Malin et al., 2019a), alteration of kidney and liver function (Malin et al., 2019b), et al. All these studies implicated that younger children were the suspected population to fluoride. However, all people with different ages were exposed to the same level of fluoride (0.7 mg/L) in drinking water with the water fluoridation system. So, in order to against the adverse effect by fluoride exposure in youngers, children should be provided with alternative sources of drinking water.

In our study, the level of plasma fluoride in males was higher than that in females, when the level of water fluoride was similar with each other. The reasons for this were complex. One possible reason for this might be that males might intake more fluoride from drinking water than females, because males had more weight than females (p = 0.009, showed in Fig. S5) and needed more water. Once absorbed, a portion of fluoride was deposited in the skeleton and most of the remainder was excreted in urine, and to a smaller degree in feces and sweat. Another reason might be a differential excretion rate of fluoride between genders, which might cause different effects. In Green et al. study, they reported that maternal exposure to higher levels of fluoride was associated with lower IQ scores in boys but not significant in girls (Green et al., 2019). Zhou et al. (2019) also reported that gender potentially modified the associations of dental prevalence with relative mitochondrial DNA levels, which showed a stronger inverse relationship between dental fluorosis prevalence and relative mitochondrial DNA levels in boys than in girls.

The main type of drinking water sources in U.S. was being mainly from tap water. Previous analysis of NHANES 2005–2014 showed that 85% of the U.S. children and adolescents on average drunk tap water (Sanders and Slade, 2018). In order to reduce the risk and severity of dental caries of children, the U.S. Public Health Service had recommended the addition of fluoride to drinking tap water since 1945, and 63.4% of the U.S. population had accessed to a fluoridated community water system in 2018 (Centers for Disease Control and Prevention, 2018). So, there was easy to understand that fluoride concentrations in plasma was correlated with that in tap water. But the correlation coefficient was not high. One reason for this might be that only about 60% of fluoride intake was from fluoridated drinking water (U.S. Department of Health and Human Services Federal Panel on Community Water Fluoridation, 2015).

In order to minimize the unwanted effect caused by water fluoridation, we might need to reevaluate the current policy on national water fluoridation program, which is overseed by the Department of Health and Human Services (HHS). Water fluoridation had become a controversial public health intervention these years (Peckham and Awofeso, 2014; Spencer and Limeback, 2018). Fluoridation was not required by EPA, which was prohibited by the Safe Drinking Water Act from requiring the addition of any substance to drinking water for preventive health care purposes. As some areas of the country had high levels of naturally occurring fluoride which could dissolve easily into ground water as it moved through bedrock, EPA had a non-enforceable standard for fluoride of 2.0 mg/L in drinking water to protect children against dental fluorosis (https://www.epa.gov/sdwa/drinking-water-regulations-and-contaminants). As there were numerous studies supported that low level of fluoride consumption had been shown to be associated with decreased prevalence of dental caries (Featherstone, 1999; Iheozor-Ejiofor et al., 2015). In many countries, including the U.S., small amounts of fluoride were added to drinking water, salt, or milk to reduce the incidence of tooth decay. In the U.S., fluoridation of public water supplies was started in 1945. The Centers for Disease Control and Prevention (CDC), which is one of the major operating components of

HHS, provides recommendations about the optimal levels of fluoride in drinking water. However, a large increase in prevalence of dental fluorosis occurred among recent 30 years, which might relate with the widespread use of fluoride toothpastes and dental treatments (Neurath et al., 2019).

In our study, we observed that even low level of water or plasma fluoride exposure was associated with increased the risk of dental fluorosis. This result was consistent with a European review, which concluded that water fluoridation was a crude and rather ineffective policy to prevent dental caries without a detectable threshold for dental damage (European Commission, 2011). Previous studies reported there was a linear dose-response relationship between the serious of dental fluorosis and fluoride intake, and indicated that dental fluorosis could occur even at very low fluoride intake from water (Butler et al., 1985; Fejerskov et al., 1996). In Peckham's review, the authors concluded that available evidences suggested that fluoride had a potential to cause major adverse human health problems, while having only a modest dental caries prevention effect (Peckham and Awofeso, 2014). Therefore, the intervention of drinking water fluoridation is really needed further research.

Our study also had some limitations. Due to the cross-sectional design, this study had less power in terms of the causal inference of the associations between fluoride exposure and dental fluorosis. Secondly, the assessment of drinking water fluoride and plasma fluoride might not be satisfactory in reflecting exposure level in the years when the permanent teeth of the participants forming (birth to 8 years). As fluoridated water policy have implemented since 1960s, to a certain extent, we hypothesized that a single measurement of blood fluoride and water fluoride reflected the level of long-term exposure. However, since participants were enrolled during or after 2015, the year that the HHS recommended lowering water fluoride concentrations from 0.7 to 1.2 mg/L to 0.7 mg/L to minimize the risk of dental fluorosis (Fluoridation 2015), the water fluoride concentrations during the years when the permanent teeth of the participants forming might be higher than those observed in this study. We also collected the water fluoride data in the year of 2013–2014 from NHANES (Centers for Disease Control and Prevention, 2020), and found that water fluoride concentrations were reduced significantly after lowering the recommended water fluoride concentration (Fig. S6). Thirdly, NHANES did not provide data on participants' length of time at their current residence, thus we could not get their duration of exposure to the water fluoride concentrations measured in this study.

5. Conclusions

Low level of water or plasma fluoride exposure was associated with increased risk of dental fluorosis. The safety of public health approach of drinking water fluoridation for global dental caries reduction are urgently needed further research.

CRediT authorship contribution statement

Haitao Dong: Conceptualization, Writing - original draft. **Xin Yang**: Investigation, Software. **Shixuan Zhang**: Data curation, Resources. **Xueting Wang**: Investigation. **Chunlan Guo**: Software. **Xinyuan Zhang**: Methodology. **Junxiang Ma**: Data curation. **Piye Niu**: Project administration. **Tian Chen**: Software, Writing - review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary material

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.ecoenv.2021.112439.

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A Benchmark Dose Analysis for Maternal Pregnancy Urine-Fluoride and IQ in Children

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As a guide to establishing a safe exposure level for fluoride exposure in pregnancy, we applied benchmark dose modeling to data from two prospective birth cohort studies. We included mother–child pairs from the Early Life Exposures in Mexico to Environmental Toxicants (ELEMENT) cohort in Mexico and the Maternal-Infant Research on Environmental Chemicals (MIREC) cohort in Canada. Maternal urinary fluoride concentrations (U-F, in mg/L, creatinine-adjusted) were measured in urine samples obtained during pregnancy. Children were assessed for intelligence quotient (IQ) at age 4 ($n = 211$) and between six and 12 years ($n = 287$) in the ELEMENT cohort, and three to four years ($n = 407$) in the MIREC cohort. We calculated covariate-adjusted regression coefficients and their standard errors to assess the association of maternal U-F concentrations with children's IQ measures. Assuming a benchmark response of 1 IQ point, we derived benchmark concentrations (BMCs) and benchmark concentration levels (BMCLs). No deviation from linearity was detected in the dose–response relationships, but boys showed lower BMC values than girls. Using a linear slope for the joint cohort data, the BMC for maternal U-F associated with a 1-point decrease in IQ scores was 0.31 mg/L (BMCL, 0.19 mg/L) for the youngest boys and girls in the two cohorts, and 0.33 mg/L (BMCL, 0.20 mg/L) for the MIREC cohort and the older ELEMENT children. Thus, the joint data show a BMCL in terms of the adjusted U-F concentrations in the pregnant women of approximately 0.2 mg/L. These results can be used to guide decisions on preventing excess fluoride exposure in pregnant women.

KEY WORDS: Benchmark dose; cognitive deficits; fluoride; neurotoxicity; pregnancy; prenatal exposure

1. INTRODUCTION

The Environmental Protection Agency's maximum contaminant level goal (MCLG) of 4.0 mg/L for fluoride in drinking water was first set in 1985 to protect against chronic fluoride toxicity in the

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form of crippling skeletal fluorosis (U.S. Environmental Protection Agency, 1985). In 2006, the U.S. National Research Council (NRC) concluded that fluoride may adversely affect the brain (National Research Council, 2006). Since then, a substantial number of cross-sectional studies, mostly in communities with chronic fluoride exposure, have shown lower cognitive performance in children growing up in areas with higher fluoride concentrations in drinking water, as summarized in meta-analyses (Choi et al., 2015; Duan, Jiao, Chen, & Wang, 2018; Tang, Du, Ma, Jiang, & Zhou, 2008). Support for fluoride neurotoxicity has also emerged from experimental studies (Bartos et al., 2018; Mullenix, Denbesten, Schunior, & Kernan, 1995; National Toxicology Program, 2020). Despite the existence of recent prospective birth cohort studies (Bashash et al., 2017; Green et al., 2019; Valdez Jimenez et al., 2017), no meta-analysis has so far focused on prenatal fluoride exposure.

Fluoride is found in many minerals, in soil and thus also in groundwater (National Research Council, 2006). Since the mid 1940s, fluoride has been added to many drinking water supplies in order to prevent tooth decay (U.S. Environmental Protection Agency, 1985). Community water fluoridation is practiced in the United States, Canada, and several other countries, whereas some, like Mexico, add fluoride to table salt. Fluoridated water accounts for about 40–70% of daily fluoride intake in adolescents and adults living in these communities (U.S. Environmental Protection Agency, 2010). The fluoride concentration in drinking water roughly equals the fluoride concentration in urine (National Research Council, 2006), as also recently shown in the Canadian cohort of pregnant women (Till et al., 2018). In addition to fluoridation, some types of tea, such as black tea, constitute an additional source of exposure (Krishnankutty et al., 2021; Rodríguez et al., 2020; Waugh, Godfrey, Limeback, & Potter, 2017).

Fluoride is readily distributed throughout the body, with bones and teeth as storage depots. During pregnancy, fluoride crosses the placenta and reaches the fetus (National Research Council, 2006; World Health Organization, 2006). As fluoride is rapidly eliminated via urine, the adjusted urine-fluoride (U-F) concentration mainly represents recent absorption (Ekstrand & Ehrnebo, 1983; World Health Organization, 2006). Pregnant women may show lower U-F concentrations than nonpregnant controls, perhaps due to fetal uptake and storage in hard tissues (Opydo-Symaczek & Borysewicz-Lewicka, 2005).

For the purpose of identifying safe exposure levels, regulatory agencies routinely use benchmark dose (BMD) calculations (European Food Safety Authority, 2009; U.S. Environmental Protection Agency, 2012). As long recognized (National Research Council, 1989), fluoride is not an essential nutrient, and dose-dependent toxicity can therefore be considered monotonic. As with lead (Budtz-Jørgensen, Bellinger, Lanphear, & Grandjean, 2013), BMD results can be generated from regression coefficients and their standard errors for the association between maternal U-F concentrations and the child's intelligence quotient IQ score (Grandjean, 2019). The BMD is the dose leading to a specific change (denoted BMR) in the response (in this case, an IQ loss), compared with unexposed children. A decrease of 1 IQ point is an appropriate BMR, as specified by the European Food Safety Authority and also recognized by the U.S. EPA (Budtz-Jørgensen et al., 2013; European Food Safety Authority, 2010; Gould, 2009; Reuben et al., 2017). The present study uses data from two prospective birth cohort studies (Bashash et al., 2017; Green et al., 2019) to calculate the benchmark concentration (BMCs) of U-F associated with a 1-point decrement in Full Scale IQ (FSIQ).

2. METHODOLOGY

2.1. Study Cohorts

In the Early Life Exposures in Mexico to Environmental Toxicants (ELEMENT) project, mother–child pairs were successively enrolled in longitudinal birth cohort studies from the same three hospitals in Mexico City which serve low to moderate income populations. A full description of the cohorts and associated methods is provided in a recent "Cohort Profile" article (Perng et al., 2019). Urinary samples were collected from pregnant women between 1997 and 1999 (Cohort 2A, n = 327) and between 2001 and 2003 (Cohort 3 with calcium intervention and placebo arms, $n = 670$). Cohort 2A was designed as an observational birth cohort of lead toxicodynamics during pregnancy, while Cohort 3 was designed as a randomized double-blind placebo-controlled trial of calcium supplements. Women were included in the current study if they had at least one biobanked urine sample for fluoride analysis, a urinary creatinine

concentration, complete data of adjusted covariates, and their child underwent cognitive testing at age four years ($n = 287$) and/or between ages 6 and 12 years ($n = 211$). Of the 287 participants with data on general cognitive index (GCI) outcomes and other variables, 110 were from Cohort 2A, 93 were from the Cohort 3 calcium intervention arm, and 84 were from the Cohort 3 placebo arm. Among participant in the GCI outcome, U-F data were available for all three trimesters ($n = 25$), two trimesters ($n = 121$), or one trimester ($n = 141$). Of the 211 participants with data on IQ outcomes, 78 were recruited from Cohort 2A, 75 from the Cohort 3 calcium intervention arm, and 58 from the placebo arm; U-F data for IQ outcome were available for all three trimesters ($n = 10$), two trimesters ($n = 82$), or one trimester ($n = 119$).

In the Maternal–Infant Research on Environmental Chemicals (MIREC) program, 2,001 pregnant women were recruited between 2008 and 2011 from 10 cities across Canada. Women were recruited from prenatal clinics if they were at least 18 years old, less than 14 weeks of gestation, and spoke English or French. Exclusion criteria included fetal abnormalities, medical complications, and illicit drug use during pregnancy; further details have been previously described (Arbuckle et al., 2013). A subset of children ($n = 601$) in the MIREC Study was evaluated for the developmental phase of the study (MIREC-Child Development Plus) at three–four years of age from six of the 10 cities included in the original cohort, half of which were fluoridated. Of the 601 children who completed the neurodevelopmental testing in entirety, 526 (87.5%) mother–child pairs had all three U-F samples; of these, 512 (85.2%) had specific gravity measures, while 407 (67.7%) had creatinine data, as well as complete covariate data; 75 (12.5%) women were missing one or more trimester U-F samples, and 14 women (2.3%) were missing one or more covariates.

2.2. Exposure Assessment

All urine samples from the two studies were analyzed by the same laboratory at the Indiana University School of Dentistry using a modification of the hexamethyldisiloxane (Sigma Chemical Co., USA) microdiffusion method with the ion-selective electrode (Martinez-Mier et al., 2011).

In the ELEMENT study, spot (second morning void) urine samples were collected during the first trimester ($M \pm SD$: 13.7 ± 3.5 weeks for Cohort 2A and 13.6 ± 2.1 weeks for Cohort 3), second trimester (24.4 ± 2.9 weeks for Cohort 2A and 25.1 ± 2.3 weeks for Cohort 3), and third trimester (35.0 ± 1.8 weeks for Cohort 2A and 33.9 ± 2.2 weeks for Cohort 3). The samples were collected into fluoride-free containers and immediately frozen at the field site and shipped and stored at −20 °C at the Harvard School of Public Health, and then at −80 °C at the University of Michigan School of Public Health. To account for variations in urinary dilution at time of measurement, the maternal U-F concentration was adjusted for urinary creatinine, as previously described (Thomas et al., 2016). An average of all available creatinine-adjusted U-F concentrations during pregnancy (up to a maximum of three samples) was computed and used as the exposure parameter.

In the MIREC study, urine spot samples were collected at each trimester, that is, first trimester at 11.6 ± 1.6 ($M \pm SD$) weeks of gestation, second trimester at 19.1 ± 2.4 weeks, and third trimester at 33.1 ± 1.5 weeks. Maternal U-F concentrations at each trimester were adjusted for both creatinine and specific gravity, as described previously (Till et al., 2020). For this joint analysis, however, we elected to use the U-F concentrations adjusted for creatinine to keep the urine dilution factor consistent with the adjustment procedure in ELEMENT. For each woman, the average maternal U-F concentration was derived only if a valid U-F value was available for each trimester.

2.3. Assessment of Intelligence

The ELEMENT study (Bashash et al., 2017) used the McCarthy Scales of Children's Abilities (MSCA) Spanish version to measure cognitive abilities at age four years and derive a GCI as a standardized composite score. The MSCA was administered by trained psychometrists or psychologists who were supervised by an experienced clinical child psychologist. For children aged six–12 years, a Spanish-version of the Wechsler Abbreviated Scale of Intelligence (WASI) was administered to derive FSIQ as a measure of global intellectual functioning. In the MIREC study, children's intellectual abilities (Green et al., 2019) were assessed at age three–four years using the FSIQ from the Wechsler Preschool and Primary Scale of Intelligence, Third Edition (WPPSI-III). A trained research assistant who was supervised by a psychologist administered the WPPSI-III in either English or French. In both studies, examiners were blinded to the children's fluoride exposure. All raw scores were standardized for age.

The GCI shows concurrent validity with intelligence tests, including the Stanford–Binet IQ ($r = 0.81$) and FSIQ ($r = 0.71$) from the Wechsler Preschool and Primary Scale of Intelligence (WPPSI) (Kaplan & Sacuzzo, 2010). Similarly, the FSIQ of the WASI (ELEMENT cohort) and WISC-III (MIREC cohort) is strong ($r = 0.81$) (Wechsler, 1991). The high covariance between the various measures of intellectual ability provides justification for pooling IQ scores across the two cohorts.

2.4. Covariate Adjustment

For the ELEMENT study, data were collected from each subject by questionnaire on relevant parameters, gestational age was estimated by registered nurses, and maternal IQ was estimated using subtests of the Wechsler scale standardized for Mexican adults. Covariates included gestational age (weeks), birth weight, sex, age at outcome measurement, and the following maternal characteristics: parity (being first child), smoking history (ever smoked vs. nonsmoker), marital status (married vs. other), age at delivery, IQ, education (years of education), and subcohort (Cohort 2A, Cohort 3 calcium intervention or placebo).

The MIREC study selected similar covariates from a set of established predictors of fluoride metabolism and cognitive development, including sex, city of residence, HOME score, maternal education (dichotomized as bachelor's degree or higher: yes/no), and maternal race/ethnicity (dichotomized as white: yes/no). Covariates included in the original studies (Bashash et al., 2017; Green et al., 2019) were retained in the statistical calculations in the present study. Due to a growing body of epidemiologic studies showing sex-specific effects associated with neurotoxic exposures (Levin, Dow-Edwards, & Patisaul, 2021), including fluoride (Green et al., 2019; Green, Rubenstein, Popoli, Capulong, & Till, 2020), interactions between sex and U-F exposure were examined.

2.5. Benchmark Concentration Calculations

The BMC is the U-F concentration that reduces the outcome by a prespecified level (known as the benchmark response, BMR) compared to an unexposed control with the same covariate profile (Budtz-Jørgensen, Keiding, & Grandjean, 2001; Crump, 1995). We based the benchmark calculations on regression models with p covariates in the following form:

$$\mathrm{IQ} = \alpha_0 + \alpha_1 \times \mathrm{covariate}_1 + \cdots + \alpha_\mathrm{p} \times \mathrm{covariate}_\mathrm{p} + f(c) + \varepsilon$$

where c is the urine-fluoride concentration and f is the concentration–response function, and ε is a normally distributed error term with a mean of 0 (and a variance of σ^2). To assess the linearity of the concentration-response relationship, several models were considered. In addition to the standard linear model, where $f(c) = \beta \mathrm{c}$, we estimated a squared effect, where $f(c) = \beta \mathrm{c}^2$, and two piecewise-linear models (or broken-stick) with breakpoints at 0.5 and 0.75 mg/L. Piecewise-linear models are useful in benchmark calculations because the slope of the concentration-response function is allowed to change linearity at the breakpoint, and in such models, benchmark calculations are less sensitive to exposure-associated effects occurring only at high concentration levels. Furthermore, to allow for the possibility of different exposure effects in boys and girls, each concentration-response model was also fitted with the inclusion of an interaction with sex.

Models were fitted separately in the two cohorts yielding analyses that were similar to those presented in the original publications (Bashash et al., 2017; Green et al., 2019) based on the original raw data and with the covariate adjustments as originally justified. Sensitivity analyses were carried out using the MIREC specific gravity-adjusted U-F values joint with the ELEMENT creatinine-adjusted U-F values as well. The Mexico study controlled for maternal bone lead stores (the primary source of prenatal lead exposure in this cohort) and blood-mercury during pregnancy, although the sample size was reduced by about one-third; the effect estimates for fluoride on child IQ increased and remained statistically significant ($p < 0.01$) (Bashash et al., 2017). Similarly, controlling for lead, mercury, perfluorinated compound, arsenic, and manganese in the MIREC study did not result in any appreciable change of the U-F estimates (Green et al., 2019). Thus, these other neurotoxicants were not included as covariates in the present calculations. Using the regression coefficients, we first calculated BMC results for each cohort and then derived joint BMCs by combining regression coefficients from the two cohorts.

Given that the BMC reduces the outcome by the BMR, a smaller BMR will result in lower BMC and benchmark concentration level (BMCL) results. For the child IQ as the outcome variable, the BMR is

1 IQ point. In our regression model, the IQ difference between unexposed subjects and subjects at the BMC is given by $f(0) - f(\text{BMC})$, and therefore the BMC satisfies the equation $f(0) - f(\text{BMC}) = \text{BMR}$. We use concentration-response functions with $f(0) = 0$, and therefore the BMC is given by

$$\text{BMC} = f^{-1}(-\text{BMR})$$

In a regression model with a linear concentration-response function [$f(c) = \beta c$], we get $\text{BMC} = -\text{BMR}/\beta$. If the estimated concentration–response is increasing (indicating a beneficial effect), the BMC is not defined, and the BMC is then indicated by ∞.

The main result of the BMC analysis is the BMCL, which is defined as a lower one-sided 95% confidence limit of the BMC (Crump, 1995). In the linear model,

$$\text{BMCL} = -\text{BMR}/\beta_{\text{lower}}$$

where β_{lower} is the one-sided lower 95% confidence limit for β (Budtz-Jørgensen et al., 2013). In the other models considered, we calculated the BMCL by first identifying a lower confidence limit for *f(c)* and then finding the concentration (c) where confidence limit is equal to $-\text{BMR}$.

Finally, we derived two sets of joint benchmark concentrations: The MIREC results (FSIQ score) were combined with ELEMENT outcomes using either GCI or FSIQ scores for all subjects where the creatinine-adjusted U-F was available. Joint benchmark concentration results were obtained under the hypothesis that the concentration-response functions were identical in the two studies. Under this hypothesis, the concentration-response function [*f(c)*] was estimated by combining the regression coefficients describing *f(c)*. Again, using the linear model as an example, we estimated the joint regression coefficient by weighing together cohort-specific coefficients. Here we used optimal weights proportional to the inverse of the squared standard error. In a Wald test, we tested whether the exposure effects in the two cohorts were equal. We calculated sex-dependent BMC results from regression models that included interaction terms between sex and *f(c)*. The fit of the regression models was compared by twice the negative log-likelihood [$-2 \log L$] as supplemented by the Akaike Information Criterion (AIC); the latter is provided in the tables. For both measures, a lower value indicates a better fit, but AIC-based differences below four are not considered important. For sex-dependent results, the AIC value for both boys and girls represents the fit of a model that includes an interaction between sex and exposure. As the linear model is nested in the piecewise linear model, the fit of these two models can be directly compared. Thus, we calculated the p-value for the hypothesis that the concentration-response is linear in a test where the alternative was the piecewise linear model. Here a low p-value indicates that the linear model has a poorer fit. As specific-gravity adjusted U-F values were available for an additional 105 MIREC subjects, we carried out sensitivity analyses using these data jointly with ELEMENT's creatinine-adjusted data.

3. RESULTS

Table 1 shows the regression coefficients obtained from the two outcomes (GCI and IQ score) in the ELEMENT study and the IQ score in the MIREC study. As previously reported (Bashash et al., 2017; Green et al., 2019), maternal U-F exposure predicts significantly lower IQ scores in boys and girls in the ELEMENT cohort, while it does not show a statistically significant association for boys and girls combined in the MIREC cohort. However, for the linear association, the difference between the two studies is not statistically significant and the combined data show highly significant U-F regression coefficients (Table 1). A sensitivity analysis using the larger number of observations with specific-gravity adjusted U-F did not show significant differences between the two cohort studies and yielded joint U-F effects that were significant.

Table 2 shows the BMC results obtained from the regression coefficients for each sex and for both sexes. The BMC and BMCL are presented for the MIREC study, the ELEMENT (GCI and IQ) study, and combined across the two cohorts. The AIC results did not reveal any important differences between the model fits, except that the linear slope appeared superior to the squared for the joint results that included the Mexican GCI data. For the linear models, the joint BMCL in terms of U-F (creatinine-adjusted) is approximately equal for the MIREC-ELEMENT IQ model (0.20 mg/L) and MIREC-ELEMENT GCI model (0.19 mg/L). Similarly, for the squared models, the joint BMCL in terms of U-F is approximately equal for the MIREC-ELEMENT IQ model (0.77 mg/L) and MIREC-ELEMENT GCI model (0.81 mg/L). When using the larger number of specific gravity-adjusted U-F results from the MIREC cohort, the joint analysis with the

Table 1. Regression Coefficients Adjusted for Confounders for the Change in the Outcome, for Boys and Girls Combined, at an Increase by 1 mg/L in Creatinine-Adjusted Maternal Urine Fluoride Concentration for IQ in the MIREC Study, GCI (Upper Rows) and IQ (Lower Rows) in the ELEMENT study, and a Joint Calculation. The Column to the Right (p_{diff}) Shows the p-Value for a Hypothesis of Identical Regressions in the two studies. Two Concentration-Response Models are Used, a Linear and one with the Squared Exposure Variable

	MIREC		ELEMENT		Joint MIREC-ELEMENT		
model	beta	p	beta	p	beta	p	p_{diff}
	FSIQ ($n = 407$)		GCI ($n = 287$)				
Linear	−2.01	0.16	−6.29	0.007	−3.20	0.008	0.12
Squared	−0.419	0.40	−2.68	0.02	−0.780	0.09	0.07
	FSIQ ($n = 407$)		IQ ($n = 211$)				
Linear	−2.01	0.16	−5.00	0.01	−3.07	0.01	0.22
Squared	−0.419	0.40	−2.65	0.002	−0.998	0.023	0.025

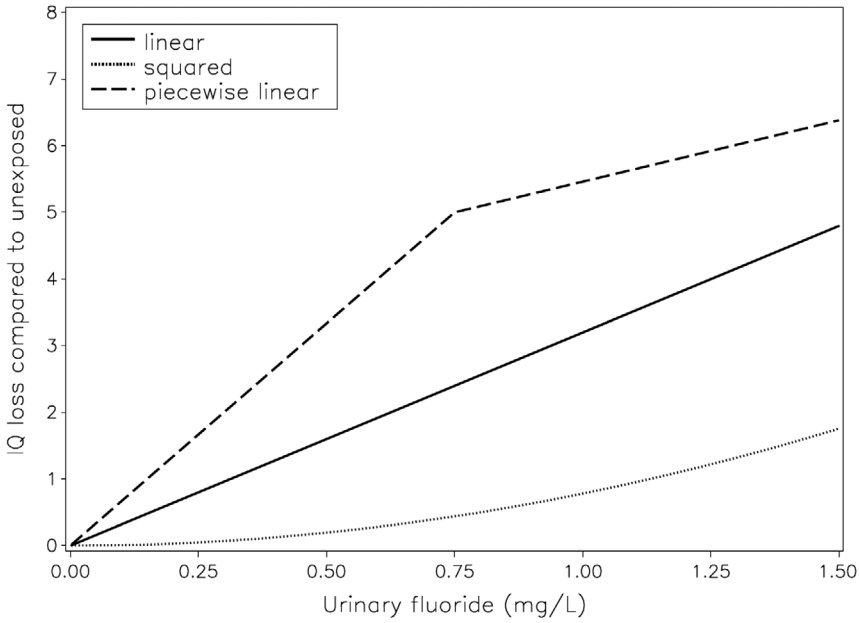

Fig 1. Association between creatinine-adjusted maternal urinary-fluoride (U-F) concentration in pregnancy and child IQ loss for the larger number of children (joint for GCI in ELEMENT and MIREC). Covariate-adjusted models are shown for the linear (solid), squared (dotted), and piecewise (dashed) linear curve with breakpoint 0.75 mg/L. The BMC is the U-F concentration that corresponds to an IQ loss of 1 (numbers shown in Tables 2 and 3).

ELEMENT data yielded results that were very close to those shown in Table 2, that is, with BMC values of about 0.19 mg/L for the linear model and about 0.63 mg/L for the squared model (data not shown).

Linear models allowing for sex-dependent effects showed a slightly better fit in the AIC mainly due to the significant interaction terms in the MIREC cohort. Although the BMCL in the MIREC cohort is clearly higher in girls than boys (0.61 vs. 0.13 mg/L), the overall BMCL for both sexes in the MIREC cohort (0.23 mg/L) is closer to the one for boys than the one for girls (Table 2). Sex-linked differences were not significant in the ELEMENT study.

Table 3 shows results using piecewise linear functions, with one breakpoint at 0.75 mg/L and one at 0.5 mg/L. A piecewise linear model is more flexible than a linear model, but AIC results showed that the joint piecewise linear models in Table 3 did not fit better than the standard linear models in Table 2. Thus, the hypothesis of a linear concentration-response relation could not be rejected: for the joint MIREC-ELEMENT IQ model, p-values for likelihood testing were $p = 0.18$ and $p = 0.15$ when the linear model was tested against models using breakpoints of 0.5 and 0.75 mg/L, respectively. For the joint MIREC-ELEMENT GCI model, the corresponding p-values were $p = 0.83$ and $p = 0.48$.

The shapes of the linear, the squared, and one piecewise concentration-response curves are shown in Fig. 1. In accordance with the BMC values, the Fig. shows that the squared model has a weaker slope

Table 2. Benchmark Concentration Results (mg/L Urinary Fluoride, Creatinine-Adjusted) for a BMR of 1 IQ Point Obtained from the MIREC Study and the Two Cognitive Assessments from the ELEMENT Study as Well as the Joint Results. Two Concentration-Response Models are used, a Linear and One with the Squared Exposure Variable. For both Models, Sex-Specific and joint benchmark Results are Provided. The fit of the Regression models was Compared by the AIC (Where Lower Values Indicate a Better Fit)

Study		MIREC ($n = 407$)		ELEMENT IQ ($n = 211$)		ELEMENT GCI ($n = 287$)		MIREC and ELEMENT IQ ($n = 618$)			MIREC and ELEMENT GCI ($n = 694$)		
Model	Sex	BMC	BMCL	BMC	BMCL	BMC	BMCL	BMC	BMCL	AIC	BMC	BMCL	AIC
Linear	Both	0.497	0.228	0.200	0.122	0.159	0.099	0.326	0.201	4770.1	0.312	0.192	5491.3
Linear	Boys	0.201	0.125	0.275	0.130	0.148	0.084	0.222	0.144	4766.7	0.184	0.125	5488.4
Linear	Girls	∞	0.609	0.160	0.091	0.169	0.087	1.098	0.275	4766.7	2.972	0.315	5488.4
Squared	Both	1.545	0.896	0.614	0.496	0.611	0.467	1.008	0.768	4768.8	1.133	0.807	5493.9
Squared	Boys	0.840	0.622	0.684	0.496	0.581	0.435	0.787	0.619	4769.4	0.761	0.601	5493.7
Squared	Girls	∞	1.262	0.576	0.449	0.642	0.434	1.637	0.866	4769.4	∞	1.040	5493.7

Abbreviations: AIC, Akaike Information Criterion; BMC, benchmark concentration; BMCL, benchmark concentration level; BMR, benchmark response; GCI, Global Cognitive Index; IQ, Intelligence Quotient.

Table 3. Benchmark Concentration (BMC) Results (mg/L Urinary Fluoride, Creatinine-Adjusted) for a BMR of 1 IQ Point Obtained from the MIREC Study and the Two Cognitive Assessments from the ELEMENT study as well as the Joint Results. Two Piecewise Linear Concentration-Response Models (with Urinary Fluoride Breakpoints at 0.5 and 0.75 mg/L) are used. For both Models, Sex-Dependent and Joint Benchmark results are Provided. The fit of the Regression Models was Compared by the AIC (Where Lower Values Indicate a Better Fit)

		MIREC ($n = 407$)		ELEMENT IQ ($n = 211$)		ELEMENT GCI ($n = 287$)		MIREC and ELEMENT IQ ($n = 618$)			MIREC and ELEMENT GCI ($n = 694$)		
Study	Sex	BMC	BMCL	BMC	BMCL	BMC	BMCL	BMC	BMCL	AIC	BMC	BMCL	AIC
Breakpoint 0.5	Both	1.751	0.092	2.688	0.431	1.004	0.042	1.073	0.139	4770.6	0.788	0.104	5495.0
Breakpoint 0.5	Boys	0.086	0.040	2.953	0.135	0.725	0.011	0.156	0.053	4766.7	0.087	0.040	5493.9
Breakpoint 0.5	Girls	∞	0.309	2.363	0.024	1.144	0.046	2.913	0.428	4766.7	3.817	0.385	5493.9
Breakpoint 0.75	Both	0.166	0.081	1.283	0.149	0.115	0.050	0.284	0.112	4769.8	0.150	0.083	5493.8
Breakpoint 0.75	Boys	0.082	0.049	1.379	0.121	0.127	0.035	0.136	0.070	4769.4	0.086	0.052	5493.6
Breakpoint 0.75	Girls	∞	0.125	1.155	0.052	0.109	0.044	1.365	0.140	4769.4	0.413	0.106	5493.6

Abbreviations: AIC, Akaike Information Criterion; BMC, benchmark concentration; BMCL, benchmark concentration level; BMR, benchmark response; GCI, Global Cognitive Index; IQ, Intelligence Quotient.

at low concentrations, while the low-concentration slope for the piece-wise association is steeper.

4. DISCUSSION

Experimental and cross-sectional epidemiology studies have provided evidence of fluoride neurotoxicity, especially when the exposure occurs during early brain development (Grandjean, 2019). As early as 2006, sufficient evidence was available to warrant further consideration of the possible brain toxicity of fluoride exposure with an emphasis on vulnerable populations (National Research Council, 2006). We now have thorough prospective epidemiology evidence on populations exposed to fluoridated water (about 0.7 mg/L) or comparable exposure from fluoridated salt and other sources. The present study is based on data from two prospective birth cohort studies (Bashash et al., 2017; Green et al., 2019) that include detailed assessment of child IQ and urinary fluoride concentrations during pregnancy. In these two studies, the mean U-F concentration (creatinine-adjusted) was similar among pregnant women living in Mexico City (0.89 mg/L) and the pregnant women living in fluoridated cities in Canada (0.84 mg/L).

Due to the brain's continued vulnerability across early development (Grandjean, 2013), early infancy may also be a vulnerable period of exposure for adverse effects from fluoride, especially among bottle-fed infants who receive formula reconstituted with fluoridated water (Till et al., 2019). Still, the effects of fetal exposure (i.e., U-F in pregnancy) in the MIREC Study remained significant when adjusting for exposure occurring in infancy. Similarly, in the ELEMENT study, the effect of maternal U-F was only marginally reduced after controlling for child U-F; fluoride exposure in school-age children showed a weaker and nonstatistically significant association with child IQ (Bashash et al., 2017). Taken together, these findings suggest that fetal brain development is highly vulnerable to fluoride exposure.

The magnitude of the fluoride-associated IQ losses is in accordance with findings in cross-sectional studies carried out in communities where the children examined had likely been exposed to chronic water-fluoride concentrations throughout development (Choi, Sun, Zhang, & Grandjean, 2012). More recent studies have shown similar results (Wang et al., 2020; Yu et al., 2018), and benchmark dose calculations (Hirzy, Connett, Xiang, Spittle, & Kennedy, 2016) relying on a large cross-sectional study (Xiang et al., 2003) showed results on the linear association similar to the ones obtained in the current analysis. These findings provide additional evidence that fluoride is a developmental neurotoxicant (i.e., causing adverse effects on brain development in early life). Given the ubiquity of fluoride exposure, the population impact of adverse effects from fluoride may be even greater than for other toxic elements like lead, mercury, and arsenic (Nilsen et al. 2020). Adverse effects of the latter trace elements are associated with blood concentrations that are about 100-fold lower than the serum-fluoride concentration that corresponds to the benchmark concentration (Grandjean, 2019).

A few retrospective studies have been carried out in communities with elevated fluoride exposure, though with imprecise exposure assessment that mostly relied on proxy variables, and without prenatal fluoride measurements (Aggeborn & Ohman, 2017; Broadbent et al., 2015). In addition to IQ outcome studies, the ELEMENT cohort found that elevated maternal U-F concentrations were associated with higher scores on inattention on the Conners' Rating Scale, an indication of Attention-Deficit/Hyperactivity Disorder (ADHD) behaviors (Bashash et al., 2018). Other studies on attention outcomes found an association between water fluoridation and diagnosis of ADHD in Canada, although data on child U-F did not replicate this association (Riddell, Malin, Flora, McCague, & Till, 2019), which is consistent with the ELEMENT study of child U-F and IQ (Bashash et al., 2017). Similarly, increased risk of ADHD was reported to be associated with water fluoridation at the state level in the United States (Malin & Till, 2015), although inclusion of mean elevation at the residence as a covariate made the association nonsignificant (Perrott, 2018).

Individual vulnerability may play a role in fluoride neurotoxicity. In the original MIREC study, boys were more vulnerable to prenatal fluoride neurotoxicity than girls (Green et al., 2019) suggesting that sex-dependent endocrine disruption may play a role (Bergman et al., 2013), among other sex-differential possibilities. Genetic predisposition to fluoride neurotoxicity may also exist (Cui et al., 2018; Zhang et al., 2015), but has so far not been verified. Other predisposing factors, such as iodine deficiency (Malin, Riddell, McCague, & Till, 2018) may contribute. For such reasons, regulatory agencies routinely use an uncertainty factor to derive safe exposure levels that are lower than the BMCL.

Both prospective studies adjusted for a substantial number of cofactors. Prenatal and early

postnatal lead exposure did not influence the ELEMENT fluoride-associated IQ deficits (Bashash et al., 2017). Adjustment for other neurotoxicants or risk factors, such as arsenic and lead exposure, did not appreciably change the estimates in the MIREC study (Green et al., 2019). While BMC results were calculated for the creatinine-adjusted U-F available from both studies, U-F results adjusted for specific-gravity were available for an additional 105 MIREC women; if using the latter U-F data, slightly lower BMC results were obtained, as compared to those based on creatinine-adjusted data only. Higher results were obtained for the squared, and lower for the broken linear slopes, but neither showed a superior fit to the data when compared to the linear relationship between maternal U-F and child IQ.

The increased precision using the average maternal U-F concentration as an indicator of prenatal fluoride exposure results in stronger statistical evidence of fluoride-associated deficits, compared with using cross-sectional or retrospective studies. Still, the amount of fluoride that reaches the brain during early brain development is unknown, and even the maternal U-F concentration measurements may be considered somewhat imprecise as dose indicators. Such imprecision, likely occurring at random, will tend to underestimate fluoride neurotoxicity (Grandjean & Budtz-Jørgensen, 2010).

The prospective studies offer strong evidence of prenatal neurotoxicity, and the benchmark results should inspire a revision of water-fluoride recommendations aimed at protecting pregnant women and young children. While systemic fluoride exposure has been linked to dental health benefits in early studies (Iheozor-Ejiofor et al., 2015), these benefits occur in the oral cavity after teeth have erupted (Featherstone, 2000), thus suggesting that use of fluoridated toothpaste and other topical treatment should be considered for alternative caries prevention.

5. CONCLUSIONS

Two prospective studies examined concentration-dependent cognitive deficits associated with the maternal U-F during pregnancy; one of the studies (Bashash et al., 2017 measured child IQ at two ages and found similar results, whereas the other study (Green et al., 2019) found a fluoride-IQ effect only in boys. We explored the shape of the concentration-response curve by using a standard linear shape and compared with a squared exposure and a piecewise linear function that allowed a change in steepness at two points within the range of exposures. Comparisons between the models suggest that the standard linear function is a reasonable approximation. All of these estimates have a certain degree of uncertainty, and emphasis should therefore be placed on the joint BMC results from the two studies and involving both sexes. These findings, using a linear concentration dependence, suggest an overall BMCL for fluoride concentrations in urine of approximately 0.2 mg/L. The results of this benchmark analysis should be incorporated when developing strategies to facilitate lowering fluoride exposure among pregnant women.

CONFLICT OF INTEREST

PG has served as an expert on the hazards of environmental chemicals on behalf of the plaintiffs in Food & Water Watch v. US EPA. HH and BL served as nonretained expert witnesses (uncompensated) for the same trial, in which they offered testimony regarding the studies their respective teams on fluoride exposure and neurobehavioral outcomes. All other authors have no interest to declare.

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The Honorable Michael Regan
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Re: Retiring the EPA Online Archive

Dear Administrator Regan,

We the undersigned write to express our opposition to EPA's plan announced in February to sunset its online archive in July 2022. The vast majority of our government's interaction with the public comes through digital channels; public digital archives such as the EPA's are of enormous value to historians as well as to the public.

This EPA archive has already proven immensely useful to environmental historians.[1] Not only are citations to it regularly featured in traditional scholarly venues, it has greatly facilitated projects such as "A People's EPA", a website and Twitter feed through which historians help explain the work of the EPA to a broader public.

Not just historians but those from a variety of academic disciplines as well as the public rely on the EPA digital archive for information, insight, and analysis. The site has provided resources for others working in ecology, biology, toxicology, and other environmental sciences as well as geography, law, sociology, political science, and public health. Professors and teachers at various levels, from K-12 schools to the graduate level utilize the archive as a pedagogical resource, directing students to

[1] Works that cite <archive.epa.gov> include: Bahng, Aimee. "The Pacific Proving Grounds and the Proliferation of Settler Environmentalism." *Journal of Transnational American Studies* 11, no. 2 (2020); Cronin, John. "The Cuyahoga fire at fifty: a false history obscures the real water crisis that never ceased." *Journal of Environmental Studies and Sciences* 9, no. 3 (2019): 340-351; Elmore, Bartow J. "Roundup from the ground up: A supply-side story of the world's most widely used herbicide." *Agricultural History* 93, no. 1 (2019): 102-138; Fredrickson, Leif, Christopher Sellers, Lindsey Dillon, Jennifer Liss Ohayon, Nicholas Shapiro, Marianne Sullivan, Stephen Bocking et al. "History of US presidential assaults on modern environmental health protection." *American journal of public health* 108, no. S2 (2018): S95-S103; Gillam, Carey. "An Award-Winning Discovery." In *Whitewash*, pp. 23-41. Island Press, Washington, DC, 2017; Gutkowski, Andrew. "The Evolution of Environmental (In) Justice in Spartanburg, South Carolina, 1900–2000." *Journal of American History* 106, no. 4 (2020): 923-948; Hepler-Smith, Evan. "Molecular bureaucracy: Toxicological information and environmental protection." *Environmental History* 24, no. 3 (2019): 534-560; Rankin, William. "The Accuracy Trap: The Values and Meaning of Algorithmic Mapping, from Mineral Extraction to Climate Change." *Environment and History* (2022); and Spears, Ellen Griffith. *Baptized in PCBs: Race, Pollution, and Justice in an All-American Town*. University of North Carolina Press, 2014, and *Rethinking the American Environmental Movement Post-1945*. Routledge, 2019.

pages that offer authoritative records of the geographies they are exploring. Not least among those who have relied on the EPA's online archive are those working with and living in more marginalized or environmental justice communities, a stated priority of current EPA leadership.

Having easily accessible documentation of the extensive EPA's investigations and records of decision for Camp Lejeune, North Carolina, for instance, has helped overcome local doubts about the agency's effectiveness, yielded greater understanding of chemical exposures, and otherwise significantly supported the agency's efforts at clean-up. Here and elsewhere, residents faced with a potential environmental hazard can more easily access the agency's past work in their locale as an aid to understanding prior investigations at the site.

The importance of EPA's online archive is perhaps best illuminated by considering what will be lost when this archive is taken down. The many mentioned uses of EPA documents will become much more difficult for those who cannot travel to EPA's print collections, and with any pandemic recurrence, well-nigh impossible. A tremendous gap will also open up in what more recent historical records are accessible, as it takes many years for any preserved documents to be transferred to and made available through the National Archives. It will become much more difficult for historians to assess and interpret this agency's recent past, much less to situate it within longer histories and larger contexts.

We understand that the EPA's provision of a public archive of its own documents and deliberations is voluntary and that online maintenance entails some costs. But those need to be factored against the better and broader understanding it has nourished of the vital work done by this federal agency, whose own future hinges on greater public awareness of and support for what it does. Instead of doing away with the EPA archive, the Biden administration should promote it as a model for other parts of the Executive Branch. In our digital age, agencies *should* make their own publications and other public interactions more quickly, thoroughly, and durably accessible, both to historians and to the larger publics our government serves.

Sincerely,

Sarah S. Elkind
President
American Society for Environmental History

The following organizations have cosigned this statement:

American Historical Association
College Art Association of America
Environmental Historians Action Collaborative
National Council on Public History
Society of Architectural Historians
World History Association

Region 1: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

Thank you, again, for all the work that went into the National Engagement Call. I know there was much appreciation for the substantive conversation, as well as reports from staff that responded directly to many of our suggested topics below. I am following up on a couple of items to maintain the momentum. In general, I know many folks are wondering about the timing of the different guidance documents. And more specifically, we wanted to check in about opportunities for public input and engagement on those various documents. When we talked as a small group, Vernice had some great suggestions about community engagement by combining opportunities for in-person, remote, and written input. We had also discussed a NEJAC Title VI working group as one mechanism for input. Is there any way to get an update about timing and/or plans for engagement? Do you have a sense of whether there will be formal comment periods? I do know that this group and others would welcome the opportunity to strategize about engagement in order to maximize input. Many thanks! Amy Laura

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Region 2: New Jersey, New York, Puerto Rico, US Virgin Islands

Public Healthy sports Generation, and Academy, Should be Established and published in Region 2,, If possible all other Regions can also be mandated to do same, Web site should be Created between now and November, And by Award AGE GROUP FOR FOOTBALL the age group for football should be for Teenager 14 years to 16 years only to be Approved. THANKS – Oluwaleye John

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Full Name (First and Last): Katherine Welty
Name of Organization or Community: Earthjustice
City and State: New York, New York
Brief description about the concern: In 2016, Congress amended TSCA, directing EPA to evaluate and eliminate chemicals' unreasonable risks not only to the general public, but also to groups that that face higher levels of chemical exposure or are more susceptible to chemical exposure. EPA's mandate to evaluate risks to communities facing high levels of chemical exposure is only satisfied if EPA considers the full range of intended, known, and reasonably foreseen ways that fenceline communities will be exposed to toxic substances. However, EPA's current Fenceline Assessment Approach fails to meet that standard. In particular, the approach narrowly defines fenceline communities, does not adequately consider available data on pre-existing levels of chemical exposure or peak facility releases, and does not reflect input from exposed communities themselves. Further, the approach fails to incorporate the cumulative impacts of multiple chemicals and multiple polluting facilities, as EPA is only looking at exposure from one chemical and one facility at a time. However, many chemicals cause the same kind of negative health and safety effects, compounding the harm that communities face when exposed to multiple toxins in one area, something not uncommon in manufacturing areas, particularly those with a long industrial past.

What do you want the NEJAC to advise EPA to do? : We request that the NEJAC help protect fenceline communities by urging EPA to expand and strengthen its assessment of fenceline community risks without delaying the regulation of chemicals that were previously evaluated under TSCA. In particular,

we ask the NEJAC to advise EPA to: 1) Incorporate immediate modifications for already assessed chemicals, including the use of existing air modeling software to map total chemical load; the inclusion of at least five years of chemical release data to better understand estimated chemical exposures; the consideration of both preexisting levels of contamination in fenceline communities as well as peak emissions from nearby facilities; and the inclusion of an uncertainty factor to better represent unstudied cumulative impacts; and 2) adopt broader changes to the fenceline assessment approach that can strengthen the risk evaluation process going forward, including the addition of cumulative risk analyses, as outlined by the NEJAC in its own 2004 report addressing communities facing multiple stressors.

Region 3: Pennsylvania, District of Columbia, Maryland, West Virginia, Virginia, Delaware,

Full Name (First and Last): Akisha Townsend Eaton
Name of Organization or Community: Companions and Animals for Reform and Equity
City and State: Baltimore, MD
Brief description about the concern: Human and animal well-being as part of environmental justice.

What do you want the NEJAC to advise EPA to do? : Develop best practices and consider existing best practices from other federal agencies and experts to consider the intersections of human and animal well-being in environmental justice.

Region 4: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee,

Full Name (First and Last): Demarious Nathaniel Baker
Name of Organization or Community: Tampa Bay Area
City and State: Land O Lakes Florida
Brief description about the concern: Good morning, My Name is Demarious Nathaniel Baker Born in Arcadia Florida. I currently live in the Tampa Bay Area, Pasco County. I have reason to believe that a secret agency is illegally taking DNA from my body to operate a simulation organization. I have videos in my phone and I'm now hearing a force team talking thru their monitors from my 2018 Chevy Equinox. To my knowledge they have been using this method to create laws that throughout the state by using civilian frequency brain waves. My grandmother just recently asked me if I was hearing voices in my head and she is nearly deaf. Therefore I feel that they used a undercover vehicle and put it on the market through CarMax to text whatever methods that have already been altered. This is a big concern to me and the safety of my family. I have been having thoughts from other people's DNA of people I don't know including voices in my head of major threats on my life from the president and Vice president and former presidents. Please help in this urgent time of need. I feel helpless in this moment because whatever they're doing is running through my body I a high rate of radiation from my brain, heart, testicles, lungs, groin all the way to my toes. Furthermore, MacDill AfB and all counties throughout the state of Florida have been signalling waves from Atlanta Georgia stating that they have been tracking my DNA since I was born through some type of intelligence operation that I have no knowledge of. I have one last but not least piece of information. A friend of mine by the name of

Michael Lamar who's also a Facebook friend of mine who happens to live in downtown Tampa made a video of me after I passed out face first on the elevator due to some type of aircraft and drone system extraction from a PlayStation controller. I also feel this wave of signal coming from their aircrafts and the videos below are there drones I believe. Thank you for your time

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Dr. Ellen Griffith Spears, Environmental Historians Action Collaborative, July 1, 2022. Thank you for the opportunity to submit comments to the NEJAC. I am writing today to urge the NEJAC to invest in helping to preserve an important section of the EPA Web Archive, which the agency has announced will sunset in July 2022. Although it is not the responsibility of the Office of Environmental Justice alone, but a priority for the whole agency to preserve the archived material, I believe it would be significant if the NEJAC went on record in favor of maintaining and upgrading the archive. The announced closure applies to a specific segment of the archive, the EPA Web Archive. Excluded from the sunset provision are the official publications posted in the NEPIS database at the National Service Center for Environmental Publications (NSCEP). EPA has also noted that the press releases now on the EPA Web Archive will be migrated and preserved. However, my understanding is that as many as 420,000 unique pages on the EPA Web Archive will ultimately be affected by the change, including valuable documents from the Clinton and Obama administrations about climate change. More than likely, all the documents will not go away overnight, but, over time, the archive, already in need of an upgrade, will gradually become less easy to use, less comprehensive, and of diminishing value as a resource for historians and the public. My concern is that environmental justice communities will be especially affected by the loss of this historical data. My own experience, working in depth in communities such as Gainesville, Georgia, with the Newtown Florist Club and in Anniston, Alabama, with the Sweet Valley/Cobb Town Environmental Justice Task Force and Community Against Pollution, suggests that the Web Archive is quite useful for residents of affected communities. Recently, I found the archive invaluable in doing research in Holt, Alabama, in Tuscaloosa County, where we found information about the history of the agency's investigations there. Local people are often first to recognize cases of environmental injustice. An archival search is often useful as residents work to uncover prior EPA involvement and to bring pollution concerns to the EPA's current attention. Traveling to a regional print repository is expensive, often impossible, and digital access provides the ability to search far more efficiently. The agency argues that the cost of maintaining the archive makes retaining it prohibitive. I would argue that there is a much larger cost to losing this record of EPA actions. Sunsetting the archive would not only be a loss for historians and the public, but for the agency itself. In the words of the historians' letter sent to EPA Administrator Michael Regan on June 14, the archive preserves "the vital work done by this federal agency, whose own future hinges on greater public awareness of and support for what it does." I hope that the NEJAC can invest in retaining these resources, mainly by allocating time and human capital in the immediate term to convince the agency as a whole to commit the resources necessary to preserve this valuable material as part of the commendable priority being placed on environmental justice by this administration. The EPA may be unique among federal bureaucracies in the extent to which—following various laws starting with NEPA, reinforced by William Ruckelshaus's 1983 commitment to operate "in a fishbowl," certainly with EPCRA and Community Right-to-Know—to prioritizing public access and transparency. Maintaining that commitment is a sacred trust with the American people. Thank you.

Region 5: Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin,

Thank you and your panel for allowing me speak at the final moments of the webinar today. I am a lifelong resident of East St. Louis, Illinois. Our community is full of capable and meaningful people, who unfortunately have not been treated as such by agencies and people in positions of power. My comments for those who could not hear are as follows, who do we address in order to bring the resources of the EPA to East St.Louis? We have the brains and the brawn to implement any program, any hub, any clean up effort that you can bring our way. We just need the resources. I read a quote once that said "When the elite address the issue of poverty, they focus on managing the poor instead of redistributing the wealth." Lets not follow that model. You have millions of dollars that need to be sent out by September of 2023. That money could change our community for centuries. That could help to right the wrongs that have been done to us environmentally and economically. We are ready with boots on the ground. Sincerely, Marie Franklin

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National Environmental Justice Advisory Council Meetings (NEJAC) comment. July 6, 2022 - My name is Brenda Staudenmaier. I work in the water industry in Madison, Wisconsin protecting human health and the environment. I have a degree in environmental engineering with a focus on drinking water and wastewater. In 2017, myself, my children and others filed a Federal lawsuit against the US EPA using the Toxic Substances Control Act, because fluoride added to the public drinking water supply is an unreasonable risk to the developing brain. Fluoride is equally as toxic to the brain as lead. Our case is ongoing and back in Federal Court with Judge Edward Chen, Tuesday, September 20, 2022. You should know that fluorides in US drinking water is recognized as a water pollutant by the EPA, and fluoridation policy has been recognized as an environmental justice issue by Civil Rights leadership for over a decade. Yet, political power to address this issue is lacking. None of the three EPA approved, lead- and arsenic-laced fluoridation chemicals ,that originate in the pollution control systems of industry, have ever been safety-tested. The EPA has a Maximum Contaminant Level Goal of Zero for lead and arsenic. Fluoride should have the same goal for the same reason. It poisons consumers. Please see my Product Data Sheet for the fluoride chemicals used by my utility in Wisconsin below that shows the levels of lead and arsenic allowed. Water fluoridation began in the early 1940's when we were also singing the praises of asbestos. Fluoridation began despite dentists knowing fluoride could stain and pit children's teeth with dental fluorosis. Today, 70% of US children and adolescents are afflicted with dental fluorosis on at least two teeth from ingesting too much fluoride. This effect is disproportionate by race. Yet, the oral health report in December 2021, shows despite increases in public water fluoridation, dental visits, sealants, fluoride varnish applications, and significant financial, training, and program investments, tooth decay persists - especially in minority populations who are most harmed by fluoride ingestion in more ways than stained teeth. Fluoride is not a nutrient, it is a poison used as a drug. Like all drugs, fluoride has adverse side effects affecting kidneys, thyroids, bones, and immunity - but the most appalling effect is fluoride's damage to the developing brain. Backed by 100's of animal studies and 74 human studies link fluoride to lower IQ and increased rates of learning disabilities like ADHD. It seems like almost every kid in America is diagnosed with some form of learning disability. The National Institutes of Health have funded some of the most robust neurotoxicity studies on fluoride. Every study funded by NIH has found fluoride harms the developing brain. If a pregnant mother exposes their fetus to fluoride during pregnancy or through bottle feeding their baby using tap water, they can expect to see a reduction in IQ and an increase in ADHD in their children - similar to what we see with lead exposure. Fluoride is just as neurotoxic to the brain as lead, especially when exposure occurs during fetal development and infancy. We are spending over 15 billion dollars removing lead from drinking water pipes because it harms the brain, while purposefully paying to add something just as toxic to the brain. This is the most simple environmental justice problem to fix and requires no money. All we have to do is stop paying to

add neurotoxic fluoride to the public drinking water supply. I have also attached an annotated bibliography that lists many studies published between 2015-2022 finding harm to the brain, bones, thyroid, and kidneys. Sincerely, Brenda Staudenmaier

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Region 6: Arkansas, Louisiana, New Mexico, Oklahoma, Texas,

Full Name (First and Last): Teresa Seamster
Name of Organization or Community: Retired - Former Principal & Teacher
City and State: Santa Fe, NM
Brief description about the concern: Health impacts on children and adults (especially pregnant women and elderly) from excessive exposure to oil well emissions from wells located too near homes, schools and businesses. As a researcher and author of several presentations and reports to the Navajo Nation on behalf of the Tri-Chapter Health Impact Assessment Committee of Counselor, Torreon-Starlake and Ojo Encino Chapters, I urge NEJAC to direct the well permitting agencies to establish better public safety protection guidelines outlined below.

What do you want the NEJAC to advise EPA to do? : Establish greater well setbacks from inhabited structures at 6600' for optimal health protection (MacKenzie, etal 2018 report on Boulder, CO) 2. Provide gas-blood analyzers at "frontline" community clinics to determine exposure levels so health providers can accurately diagnose and treat illnesses caused by air pollutants 3. Provide installation of air filters in homes, schools, etc. within 1/2 mile of active wells 4. Secure routes for fire, EMT and school buses that are off-limits to oil company traffic and construction projects 5. Require oil companies to conduct continuous "fenceline" air quality monitoring and make readings available to the community through an easily accessible "dashboard" on-line and in the daily media (newspaper, radio).

Full Name (First and Last): L. Watchempino
Name of Organization or Community: Multicultural Alliance for a Safe Environment
City and State: Pueblo of Acoma, NM
Brief description about the concern: EPA needs to end all exemptions from the laws that protect our health and environment, like the Clean Water Act, the Safe Drinking Water Act, the Clean Air Act, and NEPA, especially in overburdened environmental justice communities where these environmental protections are most needed. Nor should EPA exempt industrial polluters or the mining industry from returning a site to background standards through technical impracticability waivers.

What do you want the NEJAC to advise EPA to do? : Advise EPA to promote, rather than impede, the right to clean, sustainable water sources and clean air in all overburdened populations within its jurisdiction as a key element of Justice 40. If EPA permittees are unable to demonstrate the ability to meet regulatory standards during operations or lack the technology to achieve background standards at the close of operations, a permit should not be approved. In addition, more stringent conditions should be adopted to protect sensitive ecological or cultural areas as well as overburdened environmental justice communities.

Region 7: Iowa, Kansas, Missouri, Nebraska,

None

Region 8: Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming,

None

Region 9: Arizona, California, Hawaii, Nevada, the Pacific Islands,

All: The letter and accompanying exhibits previously sent to all of you document in detail numerous egregious inaccuracies, unlawful excuses, and indefensible environmental justice abuses in EPA Region 9's January 28, 2022 and May 22, 2019 letters that coverup a gross lack of CERCLA remedial compliance and enforcement action by Region 9 at the federal Motorola 52nd Street (M52) National Priorities List (NPL) Superfund Site in Phoenix, Arizona. This lack of CERCLA remedial compliance and enforcement action by EPA Region 9 has resulted in serious, decades-long unlawful groundwater contamination being allowed to unlawfully migrate uncontrolled from the federal M52 NPL Site and contaminate additional downgradient groundwater resources. More importantly, the unlawful migration of significant unlawful groundwater contamination for multiple decades beyond the boundary of the M52 NPL Site significantly contributes to ongoing and widespread public exposure of the local low income, dominantly minority community in this area to uncontrolled emissions of hazardous volatile organic compounds and other toxic chemicals from over 20 contaminated groundwater production wells that continue to operate in the area. This unlawful groundwater contamination, unwarranted and unsafe human exposures to known carcinogenic and other toxic chemicals and the resulting environmental justice abuses are all caused, in significant part, by violations by EPA Region 9 of federal minimum environmental remedial action cleanup and human health exposure standards applicable under CERCLA to the federal M52 NPL Site. EPA Region 9's failure to act has allowed unlawful offsite migration of uncontrolled unlawful groundwater contamination from the M52 NPL Site to continue for decades despite express CERCLA legal remediation requirements to the contrary and express assurances by EPA Region 9 in a 1994 M52 NPL Site Record of Decision document to "fully address the threats posed by conditions at the [M52 NPL] site." Due to EPA Region 9's failure and continued refusal to comply with and/or enforce applicable minimum CERCLA remedial action cleanup and human exposure standards at the federal M52 NPL Site, as clearly expressed in Region 9's January 28, 2022 and May 22, 2019 letters, we hereby request EPA Headquarters to independently review the documented information and data presented in the attached letter and my September 9, 2021 letter and accompanying exhibits. EPA Headquarters, especially with the Biden Administration's priority focus on remedial compliance and environmental justice, should not allow Region 9 to continue to neglect and coverup its decades-long history of insufficient remedial compliance and enforcement and failure to ensure equal protection of public health and the environment under CERCLA from the unlawful groundwater contamination and unsafe human exposures directly attributable to releases of hazardous and toxic substances within and from the federal M52 NPL Site in Phoenix, Arizona. If EPA Headquarters and the Biden Administration are genuinely serious on focusing on CERCLA remedial compliance and environmental justice as top Administration priorities, there is no reason EPA Region 9 should be allowed to continue to ignore ongoing violations of CERCLA's applicable human exposure and groundwater remedial action cleanup standards at the federal M52 NPL Site, especially when those violations are directly responsible for decades-long unsafe exposure of a local minority community to numerous carcinogenic and other toxic chemicals at one of the largest groundwater contamination sites in the country. We are ready to meet and discuss how this long-standing and inexcusable public tragedy can be readily addressed by simply requiring compliance and enforcement of the applicable CERCLA remedial action cleanup and human

exposure standards and the Biden Administration's follow through on its numerous public commitments to environmental justice. We look forward to hearing from you. Sincerely, David P. Kimball

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Dear NEJAC Members, Thank you so much for your insightful comments to my testimony on municipal waste combustion units at your June 22 meeting. The rules governing emissions from these facilities are now decades overdue and many of the facilities are over three decades old. The USEPA continues to grant a regulatory subsidy to these facilities by failing to issue regulations which protect the health of the communities hosting the facilities. Modern air pollution control technologies are required on just a handful of these incinerators; it is long past time for USEPA to issue rules which comply with the Clean Air Act and protect environmental justice communities from the harmful impacts of emissions from these incinerators. There are 157 incinerator units at 57 sites across the country, but these sites are concentrated in a handful of states. Over 90 of the 157 incinerator units in the country are in just these six states: Connecticut — 12 incinerator units at 5 sites, Florida — 24 incinerator units at 12 sites, Massachusetts — 11 incinerator units at 7 sites, New Jersey — 13 incinerator units at 4 sites, New York — 13 incinerator units at 10 sites, Pennsylvania — 19 incinerator units at 6 sites. We are requesting that the NEJAC urge USEPA to finally issue rules for Municipal Waste Combustors that protect public health and comply with the law as soon as possible. We are attaching a letter on this topic submitted to the White House Environmental Justice Advisory Committee from Breathe Free Detroit, California Communities Against Toxics, Center for Environmental Transformation, Earthjustice, East Yard Communities for Environmental Justice, Florida Rising, Global Alliance for Incinerator Alternatives, Ironbound Community Corporation, New Jersey Environmental Justice Alliance, Oregon Physicians for Social Responsibility, South Baltimore Community Land Trust, and Valley Improvement Project. Thank you so very much for your kind attention to this critical public health issue. Communities hosting these facilities need your help to protect their health and well-being. Cordially, Jane Williams, Executive Director, California Communities Against Toxics, Rosamond, California

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Region 10: Alaska, Idaho, Oregon, Washington,

None

Oral Comments (Raw) Provided at the Meeting:

(Note: Some of the Material might contain spelling and grammar errors. These comments are in a raw format and some of the continuity maybe missing.)

Nathan Park -. Good evening, everyone. I'm speaking on behalf the earth justice, public interest environmental law organization working to protect people's health and environment through the strength of our partnerships and the law. And i appreciate the opportunity today to speak with you all today I will be focusing on the justice40 initiative. Earthjustice continue to work with partners on ensuring that the historic funding levels for lead service line replacements are distributed equitably in line with the administration's justice40 initiative and to ensure this happens and for the Biden administration to hold through on justice40, EPA should do the following: First, ensure that funded programs will fully pay for lead service line replacements without charging individual property owners. Second: EPA should clarify that drinking water state revolving fund dollars cannot be used to fund any partial lead as much as line replacements which we know causes increase in lead in in drinking water and finally EPA should see through a strong science based and health protective lead and copper rule revision. In December 2021 the Biden EPA allowed the trump lead and copper rule revision to go into effect which significantly weakens the rules rule by setting up weak voluntary test testing programs narrowing the definition of lead service lines and permitting over 90% of all water systems to avoid lead service line replacement altogether the ... A new LCR must require all lead service lines to be removed in at the years and strengthening the LCR will allow Biden administration to identify and ensure service line replacements. additionally glad to see administration's update last week announcing That HUD made available 500 million for states and local governments to address lead-based payment hazards. Targeting these dollars towards disadvantaged communities in line with justice40, however under HUD housing protocols, there's no requirement for tenant-based section eight housing units to be inspected for lead has regards at any time not even upon turn over. Additionally, there are disclosure requirements, they are not effective and inspections requirements will ensure that tenants have needed information about lead and housing. This means that in public housing built before 1978, when lead paint was banned many hazards going unidentified. And that HUD made available to remade yet, leaving people and children in public housing at risk if they are not already serving from lead poisoning. And we know folks that live in-house rack or racks disproportionately affected by wide range of environmental and health hazards to ensuring these federal dollars reaching them should be central to the justice40 work. To that end EPA should join HUD in repeated calls to congress to inspect public housing and lead has regards. I see I'm out of time I will stop there and follow-up the rest of my comments online.

Adriane Busby. - Good afternoon and thank you all for your hard work and this opportunity to speak with you today. I am A.B. the Senior Food and Climate Policy Analyst with Friends of the Earth and today I'd like to recommend meaningful investment and monitoring communities located near concentrated animal feeding operations also known as factory farms. Each year today's industrial scale farms generate as much as 1 billion tons of manure. Up to 20 times more waste than humans, but at least human waste is treated. This waste, which is not treated can contain pathogens and antibiotic resistant hack back tear and call groundwater can be contaminated through ground applications leeching from manure improperly spread on lapped and through leaks or breaks in storage and containment units. Factory farm pollution contributes not only to respiratory elements but also decrease quality of life, mental stress and serious health affects these communities are communities of color or low wealth communities often have compounded exposure to risk due to historic but lingering contamination while also being targeted for new industrial development. These same communities often see low pollution

reduction investment despite EPA's knowledge. Friends of the other asks that NEJAC recommends that EPA fund direct long-term water and air quality monitoring for many including sample collection, access to laboratories, lab costs and experts for data analysis. So that the burden to collect this information is not put on the communities that are already overburdened with life's existing demands. Next, we think that EPA should support timely noticed to communities and k pose and meaningful tunes to object and as well as pollutants the operations release and potential risk associated to public health. We also recommend supporting research for sustainable alternatives to waste look ons not vulnerable to breaches and protect local communities from contamination. We think that need to create engagement plan to solicit input in additional policy solutions to factory farm pollution including hosting a series of regional EJ listening sessions, prioritizing regions, three, four, seven and nine on environmental and public health impacts of KFOS culmination in national listening session on the I. In the interest of time, I will stop there, but I thank you all for your time and consideration. Thank you very much.

Victor Perez, - My name is Doctor Victor Perez Associate Professor of Sociology at the University of Delaware and Environmental Justice Researcher. And I'm speaking on behalf of the residents of a community called Southbridge in Wilmington, Delaware, the civic association and also speaking as the interim chair of the Southbridge neighborhood action plans environmental committee. Southbridge is the core of south bridge is a small community of about 1400 people, working class with a significant number of folks who fall below the property threshold. A little over 80% are African American and they've been involved in community-based efforts in trying to address a variety of Environmental Justice issues for a long time. That have always been sort of intertwined with development in the area. And so, this evening I'm going to be providing feedback that I got from some community members as a recent civic association neat meeting regarding issues important to them including flooding. To quote one community member everyone has a flooding story and it has to do with lack of adequate maintenance of the infrastructure, but also because of just the long-standing sort of problem with the ability to handle the water that happens in here with the river and the Delaware Bay, itself. The brown fields in the community, there are over 36 brown fields. Ms. Keith owes and standing water in the community are problematic. It's understood as asthma cluster and cancer cluster by community members wet land park being developed, will only address about half of the flooding that the community currently deals with. And there has to be help for Environmental Justice problem before new negative Environmental Justice issues come about caused by development called river front east which is in a lot of ways, really providing the potential for green and resilient gentrification with lack of affordable housing the community wishes to own its future and not be displaced folks talked about basic needs like laundromats as well as a mill much company and children playing by the mill much company which has health and physical safety concerns. As well as a lack of variety of encapsulated soils all over including construction sites that has pounds of dirt with glass and hazardous materials as well as brown fields particularly near where children play in parks. Thank you very much for the opportunity to speak today.

John Mueller - Good afternoon. And greetings again from Tulsa, Oklahoma. I'm Jon Mueller retired engineer mainly water resource engineering and degree in gee physical engineering. I am again presenting concerns about water floriation. But before going any further, I want to acknowledge and thank the NEJAC members for responding to these concerns presented during previous NEJAC public

meetings by myself and others and also thank you, matt day by answering questions in your NEJAC community engagement calls. My comment today is largely spontaneous in response to the presentation on the PFAS and PFOA contamination chemicals. We all know or should know that the f in those organic chemicals is the fluoride, atoms bonded to the carbon atoms in those compounds. What makes them the "forever chemicals" that they are, is the strong bond which Wikipedia tells us is one of the strongest single bonds in chemistry and is "the strongest in organic chemistry". One reason is that it has the strongest electro negative of any element in the periodic table of the elements. It's the same atom that helps give prescription drugs like president act and lip I tour their efficacies. It's it deliberately added to public water supplies and increasingly recognized by emerging scientific studies as being harmful to human health effecting some of the same organs in our bodies as the PFAS and PFOA compounds, not only in Environmental Justice communities, but harm to the developing brains of the unborn fetus in pregnant mothers, of infants from formula reconstituted with fluoridated water and young children swallowing fluoridated foot paste. It's added as a medical treatment to help prevent to the decay with no control of human exposure other than what's added to the tap water miles upstream. It is unethical with no informed consent from those who have no choice but to drink that water. To the decay can be prevent requested better diet and/oral hygiene early brain damage is, as we have heard, a horse of a different color. Accordingly, a specific NEJAC recommendation should be banning the deliberate addition of any fluoride chemical compound to public water supplies. I will be submitting additional materials prepared by experts including highly respected thank you again for the unpresented precedented opportunities in this still greatest of nations. Thank you again.

Odette Wilkins - Hello everyone, impress and general council of wired broad band a non-profit whose mission to educate the public about the need for fiber on particulars deployment for broad band. Radio frequency radiation from wireless infrastructure is a pollutant. That includes sell towers, base stations, 4g, 5g roof top a 10 that is so called smart meters, even documented by the telecom industry in consumer product protection plans for example a brochure states: "Pollutants means any contaminant including artificially produced electromagnetic fields, sound waves, microwaves and all ... radiation. Is radio frequency radiation and also called electro smog. Personal injury claims. Major insurance companies will not cover or for personal injury from RF radiation. In fact, the EPA had recognized RF radiation as an environmental hazard back in the 1990s. As on as it did the EPA was defunded in that area and jurisdiction over those areas with a taken away. My question is when will EPA reclaim jurisdiction over this area. ... EMS disabled. They have been the unrelenting subject of discrimination, including digital discrimination and bias to be little and deny the debilitating physical injuries of rf radiation exposure. Condition can include headaches ... (too fast) hair loss, depression, skin inability to participate in normal activities or even work many of the EMS disabled are unaware of the dangers, or gave them no creed Ontario until they became injured. They also include children. Children living close to a sell tower were vomiting in beds that community had sell tower placed at the end of the block 17 people got sick and many who could afford to live elsewhere, evacuated their homes. That and still continuing in pits field Massachusetts. RF radiation is invisible cannot be perceived with naked high gas leaking from a stove. And therefore, goes unnoticed until one develops symptoms or is injured by it. The EMS disabled have been unsuspecting victims of injuries that now become their disabilities. There is talk greenhouse cause gasses or air and economy. But decarbonization cannot occur without electro smog. Any perceived benefit from reduced fuel con bulges is likely offset by greenhouse gasses from

wireless infrastructure. Presenting these comments is an effort to make visible what has otherwise been invisible until now the EMS disabled. It's important for the EPA to reclaim jurisdiction on evaluating the safety of RF radiation. Thank you.

Mayra Reiter - Project Director for Occupational Safety and Health with Farmworker Justice. I would like to thank NEJAC for the opportunity to speak today on agency investments as they relate to environmental justice. Agriculture workers comprise one of the most disadvantaged communities in the U.S. studies shown that up to 80% of farmworker households experience food insecurity. the average income of a farmworker family is in the range of 25 to $30,000. And at least 20% of farmworker families find themselves below the federal poverty level. 2.4 million farmworkers in the U.S. face significant health risks due to pesticide exposure which can result in both acute and chronic health effects that may include neurological damage, birth defects, learning disabilities and other conditions pesticide use is predicted to increase as climate change intense ties company number of investments EPA can make to help us achieve greater Environmental Justice for the agriculture workers to produce. The first of them is to dedicate resources to prioritizing the review for PFOS faith pesticide. Followed by the immediate cancellation of all uses that pose risks of concerns. EPA was supposed to complete the registration reviews of highly toxic pesticides, statutory deadline of October first, 2022. But EPA has inked indicated that only three of the 15 reviews will be completed by the deadline. And that research constraints are partly responsible for this delay. This means that farmworkers that have to wait years for EPA to take stance to fully address the risks bows posed by this pesticide unless dedicated more resources to complete the registration reviews. EPA must put resources toward developing a systematic review framework by which it can incorporate more scientifically sound ... pesticide human health risk assessments to ensure than the assessments are informed by real world data. The framework should be peer reviewed by national academy of sciences reports adoption. In addition, more resources need today improve pesticide illness surveillance. Currently the program administered by my on in partnership with EPA collects pesticide poisoning data but covers only 10 states. this program needs to be expanded to more states, prioritizing those with the greatest numbers of reports from workers. without additional investment it will be hard to assess the full affects ... this information is important for EPA to be able to properly perform its regulatory function. Finally, reducing pesticide exposures among farmworkers is an environmental goal for EPA. Farmworker justice for EPA to direct more resources towards as addressing pesticide exposures among these essential workers. Thank you.

(Rashmi Joglekar). - I'm staff scientist at earth justice and would like to thank you for providing the opportunity to speak today I will also be flowing comments on the up-coming registration reviews for pesticides, very closely aligned with the excellent comments that were just delivered. So, EPA delaying the statutory mandated of a dangerous class of pesticide called (op's putting farm worsers, children and families living near fields where ops are used at serious risk and posing Environmental Justice concerns. EPA statutorily required to complete the registration review for 18 by October of this year to ensure they're safe for use. However, EPA's illegally delaying in the process to on tape unnecessary new scientific information from non-animal tests that EPA owes even scientific experts have warned against August. EPA is already aware of the decades of scientific research that shows that ops are dangerous to human health. Op are acutely neurotoxic meaning people exposed over a short period of time can

experience poisoning symptoms like headaches, dizzy next ... ... fast fast ops also linked to harm in children, dozens of publishing scientific studies over more than two decades have shown that exposure to extremely low levels of op during early life can lead to I see visible harm to the brain result go in long-term effects. EPA's own draft risk assessment show people face unacceptable risks including children and farmworkers and again race serious concerns. Ease EPA nearly all op's pose risk to the general population from exposure to the diet including food and drinking water, infants and today letters experience dangerous levels to most op's and for some, dietary exposures in children over 100 times higher than EPA's level of concern. Farmworkers directly handle the pesticides face severe risks meaning at least one-use scenario exceeds risk levels of person by at least an order of magnitude and some cases that's even after factoring maximum protective clothing or equipment in engineering controls also pose risk to bystanders or people living near fields where they're used and spread. Nation-wide OP use data indicates that many of the communities in areas with the highest ago going at op usage are low-income communities of color. Under EPA's proposed delay, the agency will only immediately meet deadline for three as was highlighted and each year of delay puts children at risk of lifelong development harm and farm workers at risk of to the other 15 In addition to the recommendations that were outlined I'd like to specifically ask this council led, today, to issue statement urging EPA to longer delay the registration review of this dangerous class of pesticide and cancel reg us trace for uses of op that cause unreasonable harm to community's farmworkers and children. Thank you.

Jane Williams. Jane I'm going to unmute your line and ailing how you to speak. Good afternoon NEJAC members. Thank you so much for the opportunity to speak with you today. I had registered to talk. I am the Executive Director of California Communities Against Toxics and I want to talk to you today about municipal solid waste come bulges. EPA had a duty tom promulgate rules on municipal solid waste also known as garbage incinerators in the early nineties. It was one of the first rules that the agency issued under the clean air act amendments of 1990. The communities surrounding these incinerators of which there are 57 facilities with 157 incinerators across United States have never actually been afforded the protections of the act, because the rule was challenged in the federal court and then remanded by U.S. EPA. The rule is now 16 years overdue. And we are trying to get EPA to issue this rule as rapidly as possible to grant protections to the communities that host these municipal waste combustion units. Many of these facilities, as I'm sure you must be aware, are in Environmental Justice communities. They're in highly industrialized areas of the United States. And many are very old. Most of them are over 30 years old. And so, I could really use all of the help that I can go from NEJAC and its members to encourage U.S. EPA to as quickly as possible, promulgate new more protective standards. Many of these incinerators are actually concentrated in just a few states. Over half the inventory are in states that are Massachusetts, Connecticut, New York, New Jersey, Pennsylvania and Florida. So it can't be that difficult of a problem when there's over half the inventory in just six states. Since we promulgated the rules, we've learned to much more about the impacts of particulate emissions especially during this pandemic. We see the correlations between high levels and the covid epidemiologist on the ground. It is important for EPA to take this time and hurry up and promulgate new standards not open reduce air toxic in high and so thank you so much for listening to me today. And I hope that NEJAC can help us do something on this

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Last three digits ending with 320. - I'm State Coordinator with Mom's Clean Air Force Colorado Chapter also work withing engaging with community organizing within the lateen owe community here in Colorado focusing on environmental justice, bringing justice to all communities for all children to have access to clean air and have safe environment to live in. Mom's Clean Air Force is national organization of 1 million mom and dads united in fighting for our children's rights to breathe clean air and have safe environment to live in. Most importantly I'm an indigenous mother of four. We're tribal affiliates of Navajo nations and survivor general side known as the Indian removal act known as the long walk of the and a half a how. So historic (Navajo. Racism has always been a historic mark on our first nations tribes and communities and still continues today by these environmental laws and policies and regular laces that have formed our communities and have formed our environmental injustice communities such as here in Colorado where we have refinery who are continuing to operate and harm community members where children are dying before their parents that have drew up in this community. And in community cannot use their water for drinking or cooking, but they stylobate in this water. and people the state) still, bit (the state of environment have tested the water for PFAS levels and it's above the limits, I don't think there's any safe limits of PFAS in our water which is the state of Colorado Wassed House Bill 221345 pertaining to concerns measures to increase proa texts from PFAS chemicals and I would like to see the EPA take on these stronger initiatives to tackle PFAS nationally for all communities so that our children are not being victims to PFAS chemicals as well as oil and gas that releases these PFAS waste into our water ways through the sand creek river as well as the south matt river and there is a community that uses damn water from these water ways for their community drinking water. And there's just no safe limits of PFAS and we shouldn't have lower limits or high limits of PFAS to should not be even considered as safe limits. There are no safe limits of PFAS in our blood or in our health. We need to go by science based research and as well as climate research by scientists that understand that we can no locker live with these contaminants in our error our with the and he that these facilities like sup core refinery continuing to violate our right to public health sun core in a way that's safe for our children and communities who are over 50 family housing that are impacted directly by sun core and including surrounding industries that contaminate our air and our water and our lands and continue the genocide through these environmental harm created through loopholes we call policies, regulation and laws that sill. And the removal act and that's why we need to address the past, present and future in this way that we address the racism underlying in these industries is as well as our structure of government thank you for letting me speak.

(Unclear), - I'm a community member and I would like to bring consideration towards rural agriculture and residential communities. My home is in North Central Florida. My neighborhood is historically African American neighborhood intact since the end of slavery. We have a very rich history of cultural history and also for example, we have survivors of the rose woods massacrer who relocated after that event in our area. I wanted to, if possible, ask if there have been considerations in Environmental Justice in obtaining equity of citing land use in zoning. The panelist made a wonderful comment I felt as a community member about considerations of how cumulative impacts, such as what's nearby? Are there good schools? Is there access to healthy foods? And i really, there's on ated with me because I do feel that planning may be a way to begin addressing and attempting to achieve equity. My community has been advocating for Environmental Justice and Energy Justice. But also, as far as what developments are potentially proposed, how communities are engaged. If communities are given an

opportunity to be listened to, and being in a rural community, well water is something that many of my neighbors and me and my families use. I want to thank you for this opportunity to just kind of share some of the experience of community members and also, I'm not sure if this is the right forum but if we're talking about justice40 and funding, if there can be considerations on how that money can get directly to community groups would are on the ground, grass roots organizations trying to better their community, that would be awesome as well if it that could be considered. So, thank you so much for your time.

Akisha Townsend- This is my first meeting, but I do anticipate coming to other public meetings and I did attempt to register but I was under the impression that I might not be able to speak and I realize that we're getting close to time, so I will just keep my remarks very brief. And follow-up with further written comments. But I work as the chief of policy in the Environmental Justice division of care which stabs for companions and animals for reform and equity. We're human and animal wellbeing supports to my knowledge we're the first animal welfare related new profit with a division specifically deaditied toward Environmental Justice issues. And I just wanted to highlight and you know, emphasize the importance of the human animal relationship and the Environmental Justice context. I personally live in a disaster impacted area and also following Hurricane Katrina, so many stories of people who did not oaf ac wait because they had animals, companion animals at home and they didn't take advantage of those critical services that they would have need today preserve their own lives and wellbeing. So, I just wanted to emphasize the importance of that relationship and weaving that wherever it can be in terms of programming and applications for funding, just this past weekend we happened to distribute free pools for companion animals of folks in the community who had been impacted by the heat wave. There are currently no cooling centers for folks to go to and certainly not really many places that people can go to with their companion animals and the result of that is that people might just stay home and face heat stroke and other health related impacts because that relationship hasn't been considered. So those are two examples. I do hope to follow up in more depth in writing and I appreciate the opportunity to speak today. And look forward to joining the forum in the future.

Katherine Welty - I am here today to bring my concerns to the NEJAC about EPA's assessment of fence lie community risks under the toxic's substances control act. I wanted to begin by thanking the NEJAC for ongoing efforts and highlighting the harm to the fence line communities surrounding facilities where toxic chemicals are manufactured, used, released or disposed or otherwise experience greater exposures to harmful chemicals. Build out a more robust framework for the evaluation of future chemicals while also taking immediate steps to improve the fence line assessment for chemicals already been evaluated. The risk evaluation process requires EPA to ... exposures and risk and determine whether the chemicals substance presents or will present an unreasonable risk of injury. EPA must separately consider risks to susceptible subpopulations which are groups that either greater ... planned because I didn't somebody talking over. May face greater risks of harm these communities face severe health risks more like I to be dealing with stress or underlying health conditions, limited access to health care and psychological stress related to poverty and structural racism that can worsen the affects much chemical exposures. Unfortunately, EPA's current fence line assessment approach to threads leads to under estimation of chemical exposure and under estimation of risk of the methodology uses chemical

by chemical facility by facility approach ignoring the reality that fence like community residence are expose today multiple chemicals from multiple sources many of which have cumulative effects. EPA claims it does not want to change its fence line approach to delay regulation of the 10 chemicals that have already been assess and found to present unreasonable risk. However, the choice between doing things quickly and doing things directly is a false dichotomy steps EPA can take now to allow for swift regulation of chemicals while also ensuring fence line assessments are more reflective of community's actual exposures and risks. We're asking NEJAC advise EPA to firstly, incorporate immediate modifications for already assessed chemicals. Inleading the use of existing air modeling software to map total chemical load, the inclusion of at least five years of chemical release data to better understand estimated chemical exposures. The consideration of both pre-existing in fence line communities as well as speak emissions from nearby facilities and the inclusion of uncertainty factor to better representative cumulative impacts. Secondly, we ask you urge them to adopt broader changes to the fence lie assessment approach that can strengthening the risk evaluation process going forward including cumulative resoak analysis at outlined by NEJAC ... (fast) thank you all so much for your time and consideration.

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June 9, 2022

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Re: Motorola 52nd Street National Priorities List Site, Phoenix, Arizona

Dear Federal Officials:

I am in receipt of EPA Region 9's January 28, 2022 letter in response to my September 9, 2021 letter and accompanying exhibits and January 13, 2022 follow-up correspondence that was sent to all of you after more than four (4) months without any EPA response to my September 9, 2021 letter. After more than four (4) months of no response, Ms. Adams (as the Region 9 Director of the Superfund & Emergency Management Division) simply attached EPA Region 9's previous May 22, 2019 letter to her January 28, 2022 response under the false pretext that the May 22, 2019 EPA Region 9 letter "addresses the concerns raised again in [my] most recent correspondence." Ms. Adams' premise that EPA Region 9's May 22, 2019 correspondence is responsive to the serious environmental remedial action cleanup and human health exposure violations by EPA Region 9, as detailed in my September 9, 2021 letter and accompanying exhibits, is grossly misplaced and incorrect.

Contrary to EPA Region 9's self-serving and inaccurate statements in its May 22, 2019 letter, this letter and my September 9, 2021 letter and accompanying exhibits document serious, on-going unlawful groundwater contamination, unsafe human exposures and social injustice abuses directly caused by violations of applicable federal minimum remedial action cleanup and human health exposure standards under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) by EPA Region 9 at and relating to the federal Motorola 52nd Street (M52) National Priorities List (NPL) Site in Phoenix, Arizona. These violations within the federal M52 NPL Site directly and adversely impact the Arizona West Van Buren Area (WVBA) Water Quality Assurance Revolving Fund (WQARF) Site, which is a large Arizona groundwater contamination site directly adjacent to and hydrologically downgradient from the federal M52 NPL Site. The WQARF program is Arizona's equivalent to the federal CERCLA program.

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My earlier letters and EPA Region 9's prior responses related to my requests for EPA assistance to continue, at that time, an active private voluntary groundwater pump and treat remediation approved by the Arizona Department of Environmental Quality (ADEQ) within the Arizona WVBA WQARF Site. That ADEQ-approved private wellhead groundwater remediation was voluntarily initiated to protect public health and the private groundwater supply wells that were impacted by unlawful groundwater contamination from releases of toxic chemicals by unrelated third parties. That ADEQ-approved private wellhead groundwater pump and treat remediation system cleaned up hazardous volatile organic compounds (VOCs) (as well as PFAS chemicals) in the contaminated groundwater to "at least … Maximum Contaminant Level Goals established under the Safe Drinking Water Act" and "preclude[d] human exposure" to those hazardous substances beyond the operating wellhead treatment systems, as expressly required under the applicable Arizona aquifer water quality and WQARF groundwater remedial action standards.[1] The Arizona remedial action standards are consistent with the CERCLA minimum groundwater remedial action cleanup and human exposure standards in Section 121(d)(2)(A) and (B).[2] That private, voluntarily funded and operated wellhead groundwater pump and treat remediation system has since ceased operating after 8 years, due to EPA Region 9's failure under the Trump Administration to provide any requested assistance to continue that ADEQ-approved groundwater remediation within the Arizona WVBA WQARF Site.

As a result, and as thoroughly discussed in my September 9, 2021 letter and accompanying exhibits, groundwater contamination in violation of Arizona's applicable aquifer water quality standards and directly attributable to releases of hazardous substances within the geographical boundary of the hydrologically upgradient federal M52 NPL Site continues to be allowed by EPA Region 9 to unlawfully migrate uncontrolled downgradient into the WVBA WQARF Site and contaminant additional groundwater resources and be a continuing source of direct human exposure to numerous hazardous and toxic substances present in the contaminated groundwater. That unlawful groundwater contamination has been allowed by EPA Region 9 to unlawfully migrate uncontrolled for decades and continues to unlawfully migrate from the federal M52 NPL Site and, with the termination of the private voluntary downgradient wellhead groundwater pump and treat remediation system in the WVBA WQARF Site, is now continually being pumped without treatment by operating groundwater supply wells and released into the ambient air and open-air canals in the WVBA WQARF Site, directly exposing the local low income, dominantly minority community to hazardous VOCs, PFAS, 1, 4-Dioxane and other toxic chemicals. Such continuing unlawful migration of unlawful groundwater contamination and the unsafe human exposure to hazardous and toxic substances originating from releases within the federal M52 NPL Site are in direct violation of the minimum remedial action cleanup and human health exposure

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[1] See, A.R.S. § 49-223.A ["Primary drinking water maximum contaminant levels [MCLs] established by the [EPA] administrator…are adopted as drinking water aquifer water quality standards."]; See also, A.R.S. §§ 49-224.B; 49-282.06.A.2 and 49-282.06.B.4.b; A.A.C. R18-16-406.I; A.A.C. R18-16-407.E.1. ADEQ also restricts the relocation or transfer of contaminants from one environmental media (groundwater) to another (air). See, letter from ADEQ Waste Programs Director to EPA Region 9 Superfund Director, dated November 14, 2007. These are all legally "applicable or relevant and appropriate" (ARAR) cleanup standards under CERCLA Section 121(d) for the federal M52 NPL Site.

[2] See, A.R.S. § 49-104.A.16 ["The department [ADEQ] shall, unless specifically authorized by the [Arizona] legislature, ensure state laws, rules, standards, permits, variances and orders are adopted and construed to be consistent with and no more stringent than the corresponding federal law that addresses the same subject matter."]

standards required under CERCLA Section 121(d)(2)(A) and (B) that legally apply to the federal M52 NPL Site.

The Biden Administration EPA should not, and cannot, hide behind the May 22, 2019 response and analysis prepared by EPA Region 9 of the Trump Administration that violate the CERCLA minimum remedial action cleanup and human health exposure standards applicable to the unlawful groundwater contamination originating within the federal M52 NPL Site. This is especially true now that EPA in April 2022 has issued its Equity Action Plan under EPA Executive Order (EO)13985 that commits the Biden Administration EPA to make "equity, environmental justice and civil rights a centerpiece of the agency's mission."[3] "In practice, this means everyone enjoys the same degree of protection from environmental and health hazards."[4] In fact, EPA's current top enforcement official in the Biden Administration recently pledged stepped-up enforcement actions to fully address such CERCLA non-compliance.[5] Accordingly, EPA should pursue immediate active remedial cleanup and/or enforcement actions to prevent the historical and on-going violations of the applicable CERCLA groundwater remedial action and human health standards at the federal M52 NPL Site that are causing unsafe human exposure and disparate public health protection of the local minority community to numerous toxic chemicals.

In EPA Region 9's May 22, 2019 letter, the Trump Administration made excuses that are in direct conflict with EPA's April 2022 Equity Action Plan (EO 13985). More importantly, those EPA Region 9 excuses are all irrelevant to the minimum environmental remedial action cleanup and human health exposure standards required as a matter of federal law under CERCLA. These CERCLA standards legally apply to the unlawful groundwater contamination and toxic releases originating within the federal M52 NPL Site that have been and continue to be allowed by EPA Region 9 to unlawfully migrate uncontrolled downgradient and contaminate additional groundwater resources and be released and directly exposed to the local minority community in the WVBA WQARF Site.

My September 9, 2021 letter and accompanying exhibits didn't ask for EPA assistance to continue the terminated private voluntary groundwater remediation system in the WVBA WQARF Site. Instead, my September 9, 2021 letter seeks active EPA remedial action and/or enforcement to address the unlawful groundwater contamination directly attributable to the federal M52 NPL Site as required under federal law. Section 121 (d)(2)(A) of CERCLA expressly requires:

> "Such [CERCLA] remedial action shall require a level or standard of control which at least attains Maximum Contaminant Level Goals [MCLs] established under the Safe Drinking Water Act."

Also, contrary to EPA Region 9's May 22, 2019 letter, CERCLA's minimum remedial action cleanup standards expressly preclude application of the Clean Water Act surface water quality criteria to the unlawful groundwater contamination that is being allowed to unlawfully

[3] Executive Order 13985 Equity Action Plan; U.S. Environmental Protection Agency, April 2022, p.1.

[4] Id. p.3.

[5] Presentation by Larry Starfield, EPA Acting Enforcement Chief, American Bar Association, Washington D.C., May 24, 2022.

migrate uncontrolled from the federal M52 NPL Site and be directly exposed to the local minority community in the WVBA WQARF Site:

> "[Surface] [w]ater quality criteria under the Clean Water Act … may not be used to establish applicable standards under this paragraph if the process assumes a point of human exposure beyond the boundary of the facility …"

The "no human exposure beyond the boundary of the facility" standard under CERCLA applies to the wellhead of a groundwater supply "well" that has been impacted by unlawful groundwater contamination that has been allowed by EPA Region 9 to unlawfully migrate from the federal M52 NPL Site. CERCLA defines the term "facility" to expressly include a "well" and expressly clarifies that the boundary of a site or facility placed on the CERCLA National Priority List (NPL), including the federal M52 NPL Site, "consists of all contaminated areas within the [geographic] area used to identify the site, as well as any other location where that contamination has [migrated and] come to be located."[6]

In short, as a matter of federal law, CERCLA requires the unlawful groundwater contamination originating within and unlawfully migrating uncontrolled from the federal M52 NPL Site to be controlled and remediated "at least" to drinking water MCLs. Likewise, CERCLA expressly prohibits human exposure to the hazardous substances in the contaminated groundwater originating from the federal M52 NPL Site at any point beyond the boundary of any operating groundwater supply well impacted by the unlawful groundwater contamination from the federal M52 NPL Site if the hazardous substances in the groundwater have not been controlled and remediated "at least" to drinking water MCLs. Additionally, and as expressly committed to by EPA in its April 2022 Equity Action Plan (EO 13985), "equity, environmental justice and civil rights," at a minimum, require compliance with these CERCLA minimum remedial action cleanup and human health exposure standards, especially for hazardous substances from sites like the federal M52 NPL Site that is considered one of the most contaminated sites in the country.

There is no excuse why EPA Region 9 for decades has not taken the minimum remedial actions expressly required under CERCLA to adequately control and treat the unlawful groundwater contamination and preclude any human exposure to the hazardous substances in the contaminated groundwater directly attributable to releases of hazardous substances within the federal M52 NPL Site that have been allowed to unlawfully migrate uncontrolled into the WBVA WQARF Site. This is the environmental injustice to the local minority community that is fully documented in my September 9, 2021 letter and accompanying exhibits. This is the environmental injustice that EPA Region 9 during the Trump Administration in its May 22, 2019 letter ignores, offering instead totally irrelevant and unlawful excuses to try and coverup decades of EPA Region 9 failure to comply with the CERCLA minimum remedial action cleanup and human health exposure standards applicable to the federal M52 NPL Site. This is the environmental injustice

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[6] CERCLA Section 101(9); 42 USC § 9601 (9) (The term "facility means (A) any building, structure, installation, equipment, pipe or pipeline … well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or (B) any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located…," including contaminated groundwater extraction wells). See also, 83 Fed.Reg. 2549, 2551 (2018); 85 Fed.Reg. 54931, 54932 (2020).

that the Biden Administration's EPA has pledged to address in its April 2022 Equity Action Plan (EO 13985), and the environmental-injustice violations that EPA's current chief enforcement official has recently committed to take enforcement action against.

By continuing not to comply with or enforce the CERCLA minimum remedial action cleanup and human health exposure standards applicable to the unlawful groundwater contamination originating within the federal M52 NPL Site, we can only presume that EPA Region 9 in its January 28, 2022 and May 22, 2019 letters is acting knowingly and intentionally. EPA Region 9 is knowingly and intentionally refusing to apply the same and equally applicable CERCLA minimum remedial action cleanup and human health exposure standards to the unlawful groundwater contamination and released hazardous substances that EPA Region 9 has allowed to unlawfully migrate uncontrolled beyond the current geographical boundary of the federal M52 NPL Site and are now being released and directly exposed to the local minority community in the WVBA WQARF Site. Such continued unlawful inaction by EPA Region 9 clearly fails to provide "the same degree of protection from environmental and health hazards" to the minority community in the WVBA WQARF Site that the Biden Administration's EPA pledges in its April 2022 Equity Action Plan (EO 13985) to make "a centerpiece of the agency's mission" and to take aggressive actions to enforce.

EPA Region 9 tries to justify its disparate application and enforcement of the CERCLA remedial action cleanup and human health exposure standards applicable to the unlawful groundwater contamination and released hazardous substances that have been allowed by EPA Region 9 to unlawfully migrate uncontrolled from the federal M52 NPL Site into the WVBA WQARF Site by minimizing and downplaying the presumed human health exposure risk to the downgradient local minority community in the WVBA WQARF Site. First, note EPA Region 9 doesn't dispute that the local minority community is being continually and directly exposed to releases of known carcinogenic and other toxic substances despite the applicable "no human exposure" CERCLA remedial action cleanup standard if the hazardous substances in the unlawful groundwater contamination have not been controlled and treated to "at least" drinking water MCLs. EPA Region 9 also tries to deflect attention away from EPA Region 9's decades-long failure to fully comply with the CERCLA minimum "drinking water MCL" and "no human exposure beyond the boundary of the facility" remedial action cleanup standards applicable to the federal M52 NPL Site. EPA Region 9 does this by arguing "no one is drinking groundwater" in the WVBA WQARF Site and the ongoing releases of hazardous and toxic substances originating from the federal M52 NPL Site to the ambient air and open-air canals from numerous operating groundwater supply wells in the WVBA WQARF Site are "not impacting human health at levels of concern" or "do not pose an acute risk to public health."

First and importantly, these so-called, risk-based arguments by EPA Region 9 are irrelevant to the CERCLA minimum groundwater remedial action cleanup and human health exposure standards applicable to the unlawful groundwater contamination and releases of hazardous substances within the federal M52 NPL Site. The minimum CERCLA remedial action cleanup standards specifically require "a level or standard of control which at least attains Maximum Contaminant Level Goals established under the Safe Drinking Water Act" and no "point of human

exposure beyond the boundary of the facility." More importantly, the local minority community in the WVBA WQARF Site that is being subjected to unlawful and unsafe exposures to hazardous and toxic substances originating from the federal M52 NPL Site has never agreed that the level of unlawful groundwater contamination and toxic exposure to which it has been and continues to be exposed is of "no concern" or that the 40-plus years of "chronic" exposure to known carcinogenic and other toxic chemicals is acceptable as long as the exposure is not "acute." The WVBA WQARF Site is not like any other VOC-contaminated site in Arizona (or Region 9 in all likelihood) in that the local minority community has been exposed to uncontrolled hazardous VOC emissions from more than 20 contaminated Roosevelt Irrigation District (RID) groundwater supply wells for at least the past 40 years. Over 3,000 pounds of hazardous VOCs discharge into the ambient air and open-air canals of this minority neighborhood every year.

Under CERCLA's applicable minimum remedial action cleanup standards, EPA Region 9 should have controlled migration from the federal M52 NPL Site of the hazardous VOCs, PFAS and other toxic substances in the unlawful groundwater contamination, treated the unlawful groundwater contamination from the federal M52 NPL Site to at least the applicable drinking water MCLs, and precluded any human exposure to the hazardous substances in the unlawful groundwater contamination that has migrated from the federal M52 NPL Site. The environmental injustice suffered by the local minority community in Phoenix, Arizona as a result of EPA Region 9's failure to act, control and treat the unlawful groundwater contamination originating within and unlawfully migrating uncontrolled from the federal M52 NPL Site as required under CERCLA is demonstrably manifest by EPA Region 9's disparate treatment under CERCLA of the same unlawful groundwater contamination within the geographical boundaries of Operating Units (OU) 1 and 2 of the federal M52 NPL Site.

Despite the undisputed facts that "no one [has or] is drinking the [contaminated] groundwater" and there has never been any point of human exposure to the hazardous and toxic substances in the contaminated groundwater within the geographical boundaries of the federal M52 NPL Site, both EPA and ADEQ determined that "actual or threatened releases of hazardous substances from this [federal M52 NPL] site, if not addressed by implementing the [pump and treat] response action selected in the ROD, may present an imminent and substantial endangerment to public health, welfare or the environment."[7] Based on this determination by EPA and ADEQ regarding the unlawful groundwater contamination solely within the boundaries of the federal M52 NPL Site, EPA Region 9, for more than 2 decades now, has required groundwater pump and treatment to restore the aquifer to its applicable MCL drinking water aquifer water quality standards and air-emission controls to preclude any human exposure to the hazardous substances present in the contaminated groundwater at OU1 and OU2 of the federal M52 NPL Site since 1992 and 2001, respectively, as expressly required under the applicable CERCLA minimum remedial action cleanup standards.

Yet, EPA Region 9 now wants us to accept in its May 22, 2019 letter that no CERCLA remediation is necessary for the WVBA WQARF Site, where for multiple decades there is

[7] EPA Superfund Record of Decision: Motorola 52nd Street, Phoenix, Arizona, July 2, 1994, page 1.

documented unlawful groundwater contamination above applicable Arizona aquifer water quality standards and unsafe direct human exposure above EPA established not-to-be-exceeded air exposure levels to the very same hazardous and toxic substances originating from releases to groundwater within the federal M52 NPL Site that have been allowed by EPA Region 9 to unlawfully migrate uncontrolled into the WVBA WQARF Site. These are the same hazardous and toxic substances whose mere presence within the federal M52 NPL Site, without any human exposure, EPA and ADEQ determined more than 25 years ago present "an imminent and substantial endangerment to public health, welfare or the environment" requiring active CERCLA pump and treat remedial action at OU1 and OU2 of the M52 NPL Site.

Equally disturbing and unjustified is that, after extending the geographical boundary of the federal M52 NPL Site in 1997 to include the large OU3 area downgradient of OU2 to address the "co-mingling of regional VOC [groundwater] plumes"[8] containing the same VOC and other toxic chemicals found in OU1 and OU2 in concentrations that violate Arizona's applicable aquifer water quality standards, EPA Region 9 for more than 25 years now has failed to initiate any active remedial actions to comply with CERCLA's minimum remedial action cleanup standards at OU3. Such EPA Region 9 inaction effectively has allowed the unlawful and unsafe hazardous and toxic substances in the contaminated groundwater within the identified boundary of the federal M52 NPL Site, specifically from OU3, to continue to unlawfully migrate uncontrolled and contaminate additional downgradient groundwater resources and be released and directly exposed to the local minority community in the WVBA WQARF Site.

Furthermore, the health assessments referenced by EPA Region 9 are flawed and inaccurate because they don't take into account the legally applicable drinking water MCL aquifer water quality standards in Arizona, the increased toxicity established by EPA and adopted by the U.S. Department of Health and Human Services for trichloroethene (TCE) (a known carcinogen and only one of the many hazardous VOCs migrating from the federal M52 NPL Site) or acknowledge that the air samples taken back in 2011 in the breathing zone where the public may be exposed near the operating RID groundwater supply wells consistently exceeded the not-to-be-exceeded air exposure level established by EPA in Region 10 for TCE of 2.0 micrograms per cubic meter (ug/m^3). Importantly, a TCE concentration of 29.0 ug/m^3 was measured in ambient air near neighborhood homes at one of the RID wells during the 2011 sampling activity. In addition to excessive and unsafe concentrations of carcinogenic VOCs, other toxic chemicals in the contaminated groundwater migrating from the federal M52 NPL Site, including PFAS and 1–4, Dioxane, are being released into the minority community.

We sincerely request that EPA Headquarters independently review the documented information and data presented here and in the September 9, 2021 letter and accompanying exhibits and not allow Region 9 to continue to neglect and coverup its multi-decades history of remedial non-compliance and failure to ensure equal protection of human health and the environment under CERCLA from the unlawful groundwater contamination directly attributable and traceable to the federal M52 NPL Site in Phoenix, Arizona.

[8] 2011 CERCLA Sitewide Five-Year Review Report, Motorola 52nd Street Superfund Site, Arizona Department of Environmental Quality, p. 17

If EPA Headquarters refuses to investigate the violations of CERCLA's minimum remedial action cleanup and human health exposure standards and resultant environmental injustices directly attributable to those CERCLA violations at the federal M52 NPL site, we will seek appropriate investigations by EPA's External Civil Rights Compliance Office and the Justice Department for violations by EPA Region 9 of the legally applicable CERCLA cleanup standards, the Civil Rights Acts and President Biden's Environmental Justice Executive Order with respect to the federal M52 NPL Site.

We are anxious to meet at your earliest convenience to discuss how this long-standing public tragedy can be resolved.

Very truly yours,

GALLAGHER & KENNEDY, P.A.

By: David P. Kimball III

DPK:lm

cc: Misael Cabrera, *ADEQ Director*
Laura Malone, *ADEQ Division Director*
Mark Brnovich, *Arizona Attorney General*
Senator Stephanie Stahl Hamilton, LD10
Senator Rosanna Gabaldon, LD2
Senator Majority Leader Rick Gray, LD21
Senator Assistant Minority Leader Lupe Contreras, LD19
Senator Lisa Otondo, LD4
Senator Martin Quezada, LD29
Senator Rebecca Rios, LD27
House Rep. Assistant Minority Leader Jennifer L. Longdon, LD24
House Rep. Minority Whip Domingo DeGrazia, LD10
House Rep. Richard Andrade, LD29
House Minority Leader Reginald Bolding, LD27
House Rep. Cesar Chavez, LD29
House Rep. Diego Espinoza, LD19
House Rep. Diego Rodriguez, LD27
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July 6, 2022

Submitted via Email

National Environmental Justice Advisory Council
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Re: Earthjustice Written Comments on Disproportionate Harms to Farmworkers from Organophosphate Pesticides Submitted as part of June 22, 2022 NEJAC Meeting

Members of the National Environmental Justice Advisory Council ("NEJAC"),

Please accept these written comments as a supplement to the oral comments Earthjustice provided at the June 22, 2022, meeting of the NEJAC. These comments highlight the environmental injustices in the Environmental Protection Agency's review and regulation of organophosphate pesticides that cause serious harm to farmworkers, their families, and communities. EPA can take steps to address these injustices by ending its delays in completing registration review of this dangerous class of pesticides and taking expeditious action to protect workers and families from acute pesticide poisonings and neurodevelopmental harm to children.

I. EPA is delaying the statutorily mandated review of a dangerous class of pesticides called organophosphate pesticides, or "OPs".

The Federal Fungicide, Insecticide, and Rodenticide Act ("FIFRA") requires EPA to complete the registration review for 18 OPs by October 1st of this year to ensure they are safe for use. However, under EPA's updated registration review schedule, released December 2, 2021, the agency will meet this deadline for only three OPs (chlorpyrifos, chlorpyrifos-methyl, TCVP), and will **miss the deadline by as long as 3 years for the other 15.** This delay is putting farmworkers, children, and families living near fields where OPs are used **at serious risk and posing environmental justice concerns.** Nationwide OP use data indicates that certain communities in areas with the highest aggregate OP usage are low-income communities of color.[1]

II. EPA is aware of the decades of scientific research that shows that OPs are dangerous to human health.

OPs are a class of neurotoxic pesticides, derived from chemicals originally developed by the Nazis as nerve agents for war. OPs are chemically related to sarin gas. All OPs are **acutely neurotoxic**, meaning that people who are exposed over a short period of time can experience poisoning symptoms, including headaches, dizziness, vomiting, convulsions, and, in extreme cases,

[1] Rashmi Joglekar & Hetty Chin, Earthjustice, Poisoned Food, Poisoned Brains: Mapping Dangerous Pesticides in the Foods We Eat (2021), https://earthjustice.org/sites/default/files/files/20211118_comms_op_pesticide_report.pdf

respiratory failure leading to death. OPs are also linked to **neurodevelopmental harm in children**. Dozens of published scientific studies over more than two decades show that exposure to extremely low levels of OPs during early life can lead to irreversible harm to the developing brain, which can result in long-term effects like attention disorders, autism, and reduced IQ.

In 2015, EPA reviewed the evidence and confirmed the link between OPs and neurodevelopmental harm in a scientific literature review. This led the agency to retain the additional tenfold margin of safety established by the 1996 Food Quality Protection Act (the "FQPA 10X safety factor"), which is designed to account for the heightened susceptibility of children to pesticides when establishing pesticide tolerances and assessing risk.

III. EPA's own draft risk assessments show that people face unacceptable risks from OPs, including children and farmworkers, which raises serious environmental justice concerns.

People are exposed to OPs through residues on food, contaminated water, and when pesticides drift from where they are applied to where people live, work, go to school, and play. Children often have greater exposure than adults to OPs due to their increased hand-to-mouth activity, and, for their body weight, eat more fruits and vegetables, drink more water, and breathe more air. Farmworkers face the highest exposures and risks from OPs when they apply these pesticides or enter fields where OPs have been sprayed. And farmworkers and their families are more likely to live and go to school near where OPs are sprayed.

EPA released preliminary human health risk assessments for all but one of the OPs over the past six years, which document serious risks that exceed EPA's levels of concern, which are the levels EPA associates with too much risk (see Table 1). Detailed findings from EPA's preliminary human health risk assessments are summarized below:

a. Nearly all OPs pose risk to the general population from exposures through the diet, which includes food and drinking water.
b. Children face the greatest risk of harm from exposure to OPs from food and/or drinking water. As shown in Table 2 below, infants and toddlers experience dangerous levels of dietary exposures to most OPs. For some OPs, including bensulide, diazinon, ethoprop, and terbufos, dietary exposures in these young age groups are ***over 100 times higher than EPA's levels of concern***.
c. Farmworkers who directly handle the pesticides face alarming risks; all OPs evaluated by EPA pose risks of concern to occupational handlers, some from all tasks the workers perform, and some even with maximum protective clothing or equipment and engineering controls. Most of the OPs pose *severe risk* to occupational handlers, meaning that at least one use scenario exceeds EPA's risk levels of concern by at least one order of magnitude, in some cases ***even after considering maximum protective clothing or equipment and engineering controls.***
d. OPs also pose risks of concern to field workers who enter fields following pesticide application.
e. Two OPs (phosmet and malathion) pose risks of concern to children and adults from exposures at pick-your-own farms.

f. OPs also pose risks to bystanders, or people living near fields where pesticides are used and sprayed.

EPA's risk assessment findings have languished in the agency without any measures being put in place to protect children, workers, and bystanders.

IV. EPA continues to illegally delay protecting people from OPs to obtain unnecessary new studies.

Despite the overwhelming scientific evidence, including epidemiologic data, linking OPs to neurodevelopmental harm, during the Trump Administration, EPA considered removing the child-protective FQPA 10X safety factor. It proposed this based on data derived from 'New Approach Methodologies', or NAMs, which broadly includes toxicity tests that are rapid and inexpensive compared to laboratory animal studies. **While NAMs can provide useful information to support or strengthen chemical hazard evaluations, scientists and policy experts have repeatedly warned that they are limited in scope and cannot reliably predict risks for complex adverse health outcomes, like cancer, diabetes, and neurodevelopmental disorders, including the learning and behavioral problems associated with early-life exposure to OPs.**

In December 2020, EPA's Scientific Advisory Panel ("SAP") issued a highly critical report finding serious data gaps and substantive problems with EPA's proposed use of the NAMs tests for its risk assessments of OPs.[2] The SAP warned that due to the complex nature of neurodevelopment, NAMs tests could not be used to accurately examine neurodevelopmental harm because they "…may not be representative of many processes and mechanisms that could cause [such harm.]" Thus, **the SAP cautioned that NAMs could not be relied upon to set a safe exposure level or to eliminate default safety factors**, like the FQPA 10X safety factor, that provide measures of protection for pregnant women and children.

EPA's Children's Health Protection Advisory Committee ("CHPAC") also warned in a recent report against relying on NAMs to downgrade or weaken hazard evaluations.[3]

In defiance of the CHPAC and the SAP, EPA's Pesticide Office is requiring NAMs tests for several OPs before moving forward with the registration reviews, introducing further unnecessary delays. EPA already has the scientific evidence it needs to protect farmworkers and families from this dangerous war-era class of pesticides. **Waiting for data from NAMs tests that EPA's own scientific experts have warned against using to evaluate the OPs is a scientifically unsupported delay tactic that would leave families and farmworkers at risk**.

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[2] Transmittal of Meeting Minutes and Final Report of the Federal Insecticide, Fungicide and Rodenticide Act, Scientific Advisory Panel (FIFRA SAP) Virtual Meeting held on September 15-18, 2020 (Dec. 14, 2020) ("2020 NAM Report"), https://www.regulations.gov/document?D=EPA-HQ-OPP-2020-0263-0054.

[3] Children's Health Protection Advisory Committee. Letter to EPA acting administrator on protecting children's health under amended TSCA: chemical prioritization. 2021. https://www.epa.gov/sites/default/files/2021-02/documents/2021.01.26_chpac_tsca_charge_response_letter.pdf

V. EPA should act immediately to revoke food tolerances and cancel registrations for all OP food uses EPA cannot prove to be safe.

EPA's OP risk assessments already document unsafe exposures to OPs from our food, drinking water, and pesticide drift. These food-related uses are illegal and must end. Each year of delay in ending OP uses exposes children to impairments in learning, social skills, motor function, and other developmental harms. **By October 1, 2022, EPA should revoke all tolerances for unsafe food uses and thereafter cancel registrations for all uses that cause unreasonable adverse effects to workers**, considering all of the routes of exposure, the full range of harms, and environmental justice concerns. EPA's OP risk assessments document risks of concern from many activities workers perform, including aerial spraying and broadcast ground spraying, yet EPA has delayed taking action to protect workers from these risks.

VI. Given the role of this body as an Advisory Council to the EPA, <u>we specifically ask this Council to issue a statement urging EPA to:</u>

a. **Stop delaying the registration review of this dangerous class of pesticides;**
b. **Revoke food tolerances of admittedly unsafe used of all OPs expeditiously to accelerate protecting people as fast as possible from harmful uses, and**
c. **Cancel registration for uses of OPs that cause unreasonable harm to communities, farmworkers, and children.**

If you have any questions about these comments, please contact Dr. Rashmi Joglekar, Earthjustice, at rjoglekar@earthjustice.org or Patti Goldman, Earthjustice, at pgoldman@earthjustice.org. Thank you for your consideration.

Respectfully submitted,

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Table 1: OP Exposure Pathways of Concern, Worker Risks, and Health Effects

	Exposure Pathways of Concern				
	Food and/or Drinking Water	Spray Drift	Occupational Handlers	Occupational Field Workers	Neurodevelopmental Harm
Acephate	●	●	▲	●	■
Bensulide	●	●	▲	●	■
Chlorethoxyfos	●	N/A	●	N/A	■
Chlorpyrifos-methyl	●	N/A	▲	N/A	■
Diazinon	●	●	▲	●	■
Dichlorvos	●	N/A	▲	N/A	■
Dicrotophos	●	●	▲	●	■
Dimethoate	●	●	▲	●	■
Ethoprop	●	●	▲	N/A	■
Malathion	●	●	▲	●	■
Naled	●	●	▲	●	■
Phorate*	–	–	▲	–	■
Phosmet	●	●	▲	●	■
Terbufos	●	N/A	▲	N/A	■
Tribufos	●	●	●	●	■

● = an exposure pathway that is associated with risk levels of concern, according to EPA's human health risk assessments

▲ = occupational handler exposure from one or more application methods (mixing/loading/applying) is associated with **severe risk**, which we define as having a dermal and/or inhalation exposure that is one or more order(s) of magnitude greater than EPA's risk level of concern.

■ = OP that is linked to neurodevelopmental harm based on human, animal, and/or *in vitro* scientific studies.

N/A = an exposure pathway that is not expected for this pesticide because the OP is not sprayed in the air or it is not used with field workers.

* = this table does not reflect any exposure pathways for phorate other than occupational handler exposures because EPA has not conducted a human health risk assessment for phorate since 1999.

Note: Occupational handlers are workers involved in the pesticide application process. Occupational handlers can experience varying exposures to pesticides due to the distinct job functions or tasks related to pesticide application, which include mixing pesticide formulations, loading pesticide application apparatuses, and applying liquid or granular pesticides to fields. EPA typically evaluates exposures to occupational handlers from dermal absorption of pesticide residues and/or inhalation of pesticides during the application process. For all pesticides indicated above, one or more use scenarios still pose risks of concern to handlers **even if additional PPE or engineering controls are applied**. EPA provided insufficient information in the human health risk assessment to identify the severity of occupational handler risk associated with Tribufos.

Table 2: Dietary Risks of OPs in Infants and Children

	21-DAY DIETARY EXPOSURE ANALYSIS IN CHILDREN			
PESTICIDE	HIGHEST RISK AGE GROUP*	HIGHEST RISK EXPOSURE PATHWAY		TIMES HIGHER THAN EPA'S RISK THRESHOLD
		DRINKING WATER	FOOD	
Acephate	Infants	●		18
Bensulide	Infants	●	●	>100
Chlorethoxyfos	Infants	●		240
Chlorpyrifos-methyl	Children		●	1.4
Diazinon	Infants, Children	●		>100
Dichlorvos	Infants	●	●	5.9
Dicrotophos	Infants	●		3.2
Dimethoate	Infants	●	●	12
Ethoprop	Infants	●		>100
Malathion	Infants	●		4.8
Naled	Infants	●		5.5
Phosmet	Infants, Children		●	19
Terbufos	Infants	●	●	>100
Tribufos	Infants	●	●	2.26

● = an exposure pathway that is associated with risk levels of concern, according to EPA's human health risk assessments

* = Infants are defined as <1 year old. Children are defined as 1-2 years old.

National Environmental Justice Advisory Council Public Meeting Comments

Oral comment provided June 22, 2022
Written comment provide July 6, 2022

Nathan Park
Associate Legislative Representative, Lead Exposure
Earthjustice

Dear NEJAC members,

My name is Nathan Park, and I am writing on behalf of Earthjustice, a public interest environmental law organization working to protect people's health and the environment through the strength of our partnerships and the law. I provided part of these comments at the June NEJAC meeting, and appreciate the opportunity to follow up in writing about the Justice 40 Initiative.

Earthjustice continues to work with our partners on ensuring that the historic IIJA funding levels for lead service line replacements are distributed equitably, in line with the administration's Justice 40 initiative. To ensure that this happens and for the Biden administration to hold true on Justice 40, the EPA should do the following:

- **First, EPA should ensure that funded programs will fully pay for lead service line replacements without charging individual property owners,** and thereby avoiding exacerbating existing inequities and civil rights concerns. Ensuring that federally-funded replacement does not depend on the wealth of the property owner is paramount to avoid inequitable outcomes.
- **Second, EPA should clarify that partial lead service line replacements cannot be funded using any DWSRF funds**, including for example DWSRF-funded water main replacement programs. If a lead service line (including a lead connector like a gooseneck or pigtail) is touched using SRF funds, the full lead service line must be replaced at utility expense.[1]
- **Third, EPA must overhaul the Lead & Copper Rule (LCR) by late 2023**, making the upcoming Lead and Copper Rule Improvements (LCRI) transformative and truly protective of public health rather than merely "tweaking" the existing fundamentally flawed regulation. For decades, advocates across the country have conveyed the urgency of this crisis at every turn, and another round of "tweaking" the LCR will not only undercut the historic investments in lead service line

[1] In Response to the question posed by Sylvia Orduño during the public meeting on June 22, 2022, regarding examples of communities where partial lead service line replacements are a concern, I wanted to share the following, informed by my colleagues at Earthjustice and the Natural Resources Defense Council: any water utility with lead service lines that has done water main repairs or replacements and requires residents to pay for the portion under private property will have partial lead service lines. The exception is the state of Michigan, which requires under the state's 2018 LCR for water utilities to remove and rate base full lead service line replacements and bans partials (however, this does not address the partial lead service line replacements that happened over previous decades. For example, this letter from DC Water in Washington, DC indicates that there are over 11,000 partial lead service line replacements across the District.

removal Congress recently authorized but, more importantly, it will condemn another generation of families to exposure to dangerous levels of lead in drinking water.

EPA promised in December 2021 to overhaul and strengthen the health protections in its Lead and Copper Rule (LCR) for drinking water, while letting the Trump administration LCR Revisions go into effect. Notably, those reforms leave much to be desired. Among other issues, they:

- **Set up a weak and voluntary testing program at schools and childcare centers after the first year**, missing an opportunity to use strong incentives to protect children in the places they go for numerous hours each day to learn and play;
- **include a narrowed definition of "lead service line" excluding lead joints and connectors** that can be up to several feet long, and that contribute to lead contamination in water;
- **Slowed down the rate at which water systems must replace lead service lines once they are required to under the rule**; and
- **Permitted over 90 percent of all water systems to avoid lead service line replacement altogether**, regardless of how high lead levels are, due to the rule's treatment of small systems.

A new LCR must require all lead service lines to be removed in 10 years. Strengthening the LCR will allow the Biden administration and state and local water agencies to identify and ensure that communities disproportionately burdened by leaded drinking water will be prioritized for lead service line replacement.

I am additionally glad to see the administration's June update, announcing that HUD has made available $500 million for states and local governments to address lead-based paint hazards. Earthjustice supports the administration's commitment to targeting these dollars towards disadvantaged communities in line with Justice40. However, under HUD's Section 8 and Housing Choice Voucher (HCV) inspection protocols, there is no requirement for tenant-based Section 8 housing and HCV units to be inspect for lead hazards at any time, not even upon turnover. Additionally, although there are disclosure requirements, they are not effective. Inspections requirements will ensure that tenants have needed information about lead in housing. This means that in units built before 1978 with Section 8 tenants, when lead was banned in paint, many lead hazards are going unidentified.

With no hazards identified, these federally assisted housing units will not receive any of the $500 million that HUD has made available to remediate, actively leaving people and children living in Section 8 housing at risk, if they are not already suffering from lead poisoning. We know that folks living in federally assisted housing units are disproportionately affected by environmental and health hazards[2], so ensuring that federal dollars reach them should be central to the administration's Justice 40 work. To that end, the EPA should join HUD in its repeated calls to Congress for a mandate to inspect public housing for lead hazards. The Biden administration should also work with Congress to pass the Lead Safe Housing for Kids Act, spearheaded by Rep. McEachin in the House and Sen. Durbin in the Senate. This bill creates for HUD the needed mandate to require inspection of federally assisted housing where children under the age of 6 will reside, in addition to strengthening the way that lead hazard inspections are conducted in federally assisted housing units.

[2] See the "Poisonous Homes" report, published by the Shriver Center on Poverty Law, Earthjustice, the Abrams Environmental Law Clinic at the University of Chicago, and the Columbia Law School in June, 2020.

Finally, funding and work to address lead-based paint hazards will not protect children and other residents if the hazard standards are not health-based and protective. It is critically important that EPA revise its lead hazard standards as soon as possible, in light of a federal appellate court finding that they are woefully outdated and under-protective. It is also critical for EPA to work with HUD to revise the definition of lead based paint for purposes of identifying lead paint in older residences, since the current definition is more than 50 times less protective than the standard for how much lead can be present in paint sold today.

Lead poisoning continues to plague communities across the country, causing irreversible harm to children and people of all ages. There is no safe level of lead in the body, and it is imperative that EPA, HUD, and other federal and state agencies work together to eliminate all lead hazards and end lead poisoning. Thank you for your work and your consideration of these comments.

Dear Chairman Kern and Fellow Board Members.

I'm a general and cosmetic dentist and am opposed to water fluoridation in part because I treat patients harmed by fluoridation. That's right. I make a living in part by treating both functional (chips, broken, and fractured teeth) and cosmetic dental fluorosis. Dental fluorosis is a bio-marker the child was exposed to too much fluoride before the age of about six.

For many years, I supported fluoridation. Like virtually all dentists, I heard mostly good things about it in dental school and the American Dental Association (ADA) has promoted it from the beginning.

But I also have a degree in public health, and when I started researching fluoridation, I found that it's minimally effective at preventing cavities, if at all, and far more concerning, raises all kinds of health risks when ingested. After 25 years of promotion, I changed my mind. It was the rational, science-based bioethical thing to do.

There's already a consensus that fluoride's effectiveness is mainly topical, not swallowed. World Health Organization data show cavity rates in children have dropped as much in developed nations that don't fluoridate as in those that do. Clearly, fluoridation is not essential for health. And the Cochrane Collaboration, considered the gold standard of evaluating effectiveness, found no good evidence of cavity reduction in adults nor diminishing of the gap in cavity rates between low-income and higher-income families. I worked on two Native American reservations and two low-income communities and now with the very wealthy. The wealthy have better health and teeth than the poor. My experience is consistent with quality research that fluoridation does not benefit the poor nor reduce the disparity. In fact, fluoridation actually harms the poor the most.

But even supposing fluoridation was effective, how could it possibly justify the health risks it poses?

One of the most serious is neurotoxicity - permanent brain damage - the focus of the ongoing lawsuit against the EPA for allowing

fluoridation. It's based on massive, ever-increasing scientific evidence showing fluoride is lowering IQs and increasing ADHD rates in children. Please consider the science – and the scientists. I can fix teeth damage but not brain damage.

The Fluoride Action Network has documented that out of 83 human neurotoxicity studies, 74 linked higher fluoride levels to lower IQs.

The National Toxicology Program's most recent systematic review draft found that of the highest quality studies, 25 out of 27 linked higher fluoride levels to lower IQ's, 13 studies at levels in fluoridated water. Even the EPA acknowledged in court what it considered the four strongest studies ever done, three funded by the National Institutes of Health. Three showed significantly lowered IQs in children and one showed substantially increased ADHD rates – all at levels in fluoridated water.

A recent study led by world-renowned scientists Philippe Grandjean and Bruce Lanphear determined that fluoride levels in water at 0.2 parts per million (ppm) could lower IQs in children through ingestion from their mothers while pregnant. The supposedly "safe" fluoridation level of 0.7 ppm added to water and is rejected by most of the world. The authors concluded the *results should inspire a revision of water-fluoride recommendations aimed at protecting pregnant women and young children."* Please warn pregnant mom's to not ingest fluoridated water and do not swallow fluoridated toothpaste.

It's no wonder that the editor of the Journal of the American Medical Association Pediatrics, a Seattle physician, said *I would not have my wife drink fluoridated water"* if she was pregnant.

How can anyone look at all these studies – and the prestigious scientists that back them up – and still say fluoridation is proven safe for everyone? Yet the ADA, CDC's oral health department and organizations that follow them still support it. Either they're unaware of the science or refuse to acknowledge it and we, the public, suffer the consequences.

Neurotoxicity is just the tip of the iceberg. The National Research Council found that ingested fluoride can increase fluorosis, diabetes and kidney malfunction and lower thyroid levels, among other conditions. Hypothyroidism, for instance, can cause a variety of harmful effects, including fatigue, weight gain, impaired memory, joint pain and depression. According to the American Thyroid Association, about 4% of Americans suffer hypothyroidism, many of them unaware of it.

We've seen this before – wrongfully defending substances for decades like lead paint, leaded gas, asbestos, DDT, Agent Orange and cigarettes before finally banning, restricting or advising against them. Meanwhile, millions of people were unknowingly – and unnecessarily – suffering serious harm to their health. We're now witnessing the same scenario with fluoridation.

However, fluoridation is ethically far worse. Governments give it to us without consent, regardless of whether we are getting too much from other sources. And in spite of the fact that the Food and Drug Administration has approved topical fluoridated toothpaste with the warning, "Do Not Swallow." The FDA's concern is the same amount of fluoride as put in each glass of fluoridated water. Why can't people see the disconnect. One government agency, the one authorized to evaluate fluoride when intended to prevent dental caries, warns "Do Not Swallow" the same amount of fluoride as another government agency (city/water purveyor) requires in each glass of water. Makes no sense.

Dentistry is my chosen profession and we dentists gain significant profit from fluoridation. You may think conspiracy, but that is not true. Remember, I recommended fluoridation for 25 years because I did not recognize some of the chipped broken teeth were from the excess fluoride from fluoridation. I was too busy to read the science. People chip and break teeth. I simply did not consider fluoridation contributed to the breaking.

As a cosmetic dentist patients come to me to fix dental fluorosis cosmetic damage. Research indicates about 70% of children now

have some degree of dental fluorosis damage. Damage is cost, not the repairs. For example, suppose a very wealthy person scratched your car. Would you consider the scratch cosmetic damage? Most would. Knowing it was a very wealthy person who caused the damage would you accept compensation? Probably. Cosmetic damage is damage and the true cost of damage must be included in costs.

You probably have heard the phrase, "every dollar spent on fluoridation saves $38." That phrase is just part of the equation. The true costs of buildings, labor, installation, repairs, etc . . . are not included. Real world estimates report closer to $3 to $6 savings for every dollar spent on fluoridation. And none of those estimates include any harm to patients, such as the known dental fluorosis damage we dentists treat, Nor do the estimates include the presumed loss of IQ, 60% increase in low IQ. Lower IQ subpopulations have increased percentages of special education, incarceration, divorce, lower wages, less happiness and quality of life. Costs to society for those with lower IQ are in the many billions/trillions of dollars. We must not harm the brain. We find the same decrease in the percentage of very gifted, and all of us are harmed.

When a patient comes to me for cosmetic dental treatment from dental fluorosis it can require many teeth to be repaired, on average about 10 teeth. At about $1,200 per tooth, re treated about every 12 years on average, the costs just for tooth damage is estimated at over $150 for every dollar spent on fluoridation.

Your job for your vote is judgment and avoid blind trust. The Nuffeld Council reviewed the ethics of fluoridation and requires judgment on risk of fluoridation to be at the "potential" of risk. Many serious health harms from fluoride have "potential" risk. Stronger evidence is "presumed" risk and lower IQ is "presumed" to result from fluoride exposure. The next higher level of evidence is "known" risk. Dentists treat "known" harm of dental fluorosis contributed by fluoridation.

I know many dentists who feel the same as I do, but they are reluctant to speak out for fear of criticism and controversy and being shunned or disciplined by their peers. Silence and following the majority is safer for respect from colleagues and makes more money.

Fluoridation was a well-intended effort to reduce cavities and the vast majority of people who support it are similarly well-intended. But serious health risks have proven it a tragic mistake. This is such a truncated brief overview. Please contact me if you have questions.

Sincerely yours,

Bill Osmunson, DDS, MPH
Bellevue, Washington
I have been a practicing general and cosmetic dentist for 44 years and clinical instructor for cosmetic and functional dentistry.
bill@teachingsmiles.com

Dr. Ellen Griffith Spears
Environmental Historians Action Collaborative
July 1, 2022

Thank you for the opportunity to submit comments to the NEJAC. I am writing today to urge the NEJAC to invest in helping to preserve an important section of the EPA Web Archive, which the agency has announced will sunset in July 2022. Although it is not the responsibility of the Office of Environmental Justice alone, but a priority for the whole agency to preserve the archived material, I believe it would be significant if the NEJAC went on record in favor of maintaining and upgrading the archive.

The announced closure applies to a specific segment of the archive, the EPA Web Archive. Excluded from the sunset provision are the official publications posted in the NEPIS database at the National Service Center for Environmental Publications (NSCEP). EPA has also noted that the press releases now on the EPA Web Archive will be migrated and preserved. However, my understanding is that as many as 420,000 unique pages on the EPA Web Archive will ultimately be affected by the change, including valuable documents from the Clinton and Obama administrations about climate change. More than likely, all the documents will not go away overnight, but, over time, the archive, already in need of an upgrade, will gradually become less easy to use, less comprehensive, and of diminishing value as a resource for historians and the public.

My concern is that environmental justice communities will be especially affected by the loss of this historical data. My own experience, working in depth in communities such as Gainesville, Georgia, with the Newtown Florist Club and in Anniston, Alabama, with the Sweet Valley/Cobb Town Environmental Justice Task Force and Community Against Pollution, suggests that the Web Archive is quite useful for residents of affected communities. Recently, I found the archive invaluable in doing research in Holt, Alabama, in Tuscaloosa County, where we found information about the history of the agency's investigations there.

Local people are often first to recognize cases of environmental injustice. An archival search is often useful as residents work to uncover prior EPA involvement and to bring pollution concerns to the EPA's current attention. Traveling to a regional print repository is expensive, often impossible, and digital access provides the ability to search far more efficiently.

The agency argues that the cost of maintaining the archive makes retaining it prohibitive. I would argue that there is a much larger cost to losing this record of EPA actions. Sunsetting the archive would not only be a loss for historians and the public, but for the agency itself. In the words of the historians' letter sent to EPA Administrator Michael Regan on June 14, the archive preserves "the vital work done by this federal agency, whose own future hinges on greater public awareness of and support for what it does."

I am enclosing with my comments two letters that were sent on June 14, 2022, to Administrator Regan, so NEJAC members and OEJ staff will have this material at hand. I hope that the NEJAC can invest in retaining these resources, mainly by allocating time and human capital in the immediate term to convince the agency as a whole to commit the resources necessary to preserve

this valuable material as part of the commendable priority being placed on environmental justice by this administration.

The EPA may be unique among federal bureaucracies in the extent to which—following various laws starting with NEPA, reinforced by William Ruckelshaus's 1983 commitment to operate "in a fishbowl," certainly with EPCRA and Community Right-to-Know—to prioritizing public access and transparency. Maintaining that commitment is a sacred trust with the American people. Thank you.

I'm writing in response to Dr. Rachel Brennan's May 19 presentation on water fluoridation and her committee's recommendation to have State College discontinue it. I totally agree.

My background is in management of non-profit health organizations. I worked for the American Cancer Society for 21 years, the last five as executive vice president (CEO) of the Oregon chapter. I also worked seven years as the founder and project director of the Oregon Physicians for Social Responsibility's safe food program. I'm now retired.

I'm not a physician or scientist but throughout my life I've worked with them and I currently volunteer with a large group of scientific, medical and dental professionals throughout North America opposing water fluoridation.

For many years, I favored fluoridation. I only looked at who had endorsed it. I had heard many times from authorities, and repeated by most media, that it was "safe and effective" for everyone. The main promoters were the Centers for Disease Control (CDC) and the American Dental Association. Many other organizations followed their lead.

Then, about 11 years ago, I was asked by a friend to research the issue. When I did, two things stood out. First, high-quality scientific studies showed that there were numerous harmful health conditions linked to ingested fluoride, many at levels in fluoridated water. They included permanent brain damage, especially IQ loss, hypersensitivity, lowered thyroid function and kidney disease, to name a few. Second, the vast majority of nations and cities in the world had rejected fluoridation, many of them explicitly disallowing it.

Based on this new information, I changed my mind. I felt so strongly that I volunteered to oppose fluoridation wherever and whenever I could. I've put in thousands of hours studying and working on this issue and have been amazed - and chagrined - at the amount of misinformation supporting it. To cite just one example, out of many: "Fluoridation is one of the top 10 health achievements of the 20th century." At one time, I believed this myself. When I took a closer look, I found out differently:

1. Out of 196 nations, only 24 have any fluoridation and only 10 for more than half their population. The U.S. fluoridates as many people as the rest of the world combined. How can fluoridation be such a great achievement when it's so widely rejected? It can't.
2. All of the other "top 10" health achievements have been adopted world-wide, such as recognition of tobacco as a health hazard, decline in deaths from heart disease and family planning. Fluoridation is the only one out of the 10 not widely accepted.

I believe that the vast majority of people and organizations who favor fluoridation are well-intended. However, I'm quite sure they're unaware of the science, especially the most recent, demonstrating fluoridation's harmful health effects.

Dr. Brennan's presentation touched on just one of those harmful health effects, loss of IQ. She highlighted one major peer-reviewed study (Green et al), published in the Journal of the American Medical Association Pediatrics. After this study was published, the editor, a Seattle physician, was quoted in the Washington Post saying that if his wife were pregnant, he wouldn't want her drinking fluoridated water. Many other leading scientists, including the former director of the National Toxicology Program, Dr. Linda Birnbaum, have publicly voiced similar warnings (https://www.ehn.org/fluoride-and-childrens-health-2648120286.html).

Out of 83 published studies, 74 have found that higher fluoride levels are linked to lower IQs in children (https://fluoridealert.org/studies/brain01/). The National Toxicology Program's draft report, soon to be

finalized, found that out of the 27 highest-quality studies, 25 linked higher fluoride with lower IQs, nearly a dozen at levels in fluoridated water.

The scientific evidence couldn't be more abundantly clear that fluoridation can't be declared safe.

I was especially glad to hear that you are going by the tenets of the Precautionary Principle. Indeed, when your responsibility is protecting the health of your citizens, you're doing your due diligence that, if you err, you err on the side of caution.

Thank you for your consideration.

Sincerely,

Rick North
503-706-0352

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Renee	Kramer	North Carolina Depart of Environ Quality
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Holly	Ravesloot	HHS
Veda	Reed	EPA
Dawn	Reeves	Inside EPA
Amani	Reid	POWER Interfaith
Sean	Reilly	E&E News
Mayra	Reiter	Farmworker Justice
Zachariah	Richardson	State of Michigan
Leslie	Ritts	NEDA/CAP
Rey	Rivera - EPA	US EPA
LaKeshia	Robertson	EPA
Lori	Rock	BigIdeaZoo, LLC
Olivia	Rodriguez	Federal Govt
Sarah	Rowlands	Colorado AGs Office
Michelle	Rutledge	Self
Elyse	Salinas	US EPA
Virginia	Sanders	Sierra Club
Denise	Sarchiapone	B&D Environmental Consulting
Francisco	Sayu	RENEW
Grant	Scarboro	CEEJH
Robert	Schmidt	Greenville Water
Rachel	Schneider	DHS/CBP
Dean	Scott	Bloomberg
Hilary	Scott	NexGen Ind.
Isabel	Segarra Trevino	Harris County Attorney
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Danielle	Shannon	US EPA
Gina	Shirey	Alaska Department of Environ Conservation
Sarah	Sieloff	MFA
Vanessa	Simms	EPA
Brianna	Skinner	US Food and Drug Administration
Robert	Skoglund	Covestro LLC
Matthew	Small	U.S. EPA
Bernice	Smith	EPA
Dan	Solitz	Privat citizen
Steven	Sondheim	Sierra
Marisa	Sotolongo	Northeastern University

Ellen	Spears	University of Alabama
Gianna	St.Julien	Tulane University Law School
Joanna	Stancil	USDA-FS
Dimitri	Stanich	Water Resources Control Board
Symone	Stephens	CEEJH
Tracy	Stephens	NA
Andrew	Stoeckle	ERG
Michael	Stricker	MD Dept of the Environment
Alice	Sung	Greenbank Associates
Feleena	Sutton	Aera Energy
Frank	Sylvester	US Environmental Protection Agency
Ean	Tafoya	GreenLatinos
Silvia	Tanner	Multnomah County Office of Sustainability
Debra	Tellez	U.S. EPA
Murielle	Tembunde	CEEJH EJ summer scholar
Abby	Tennant	NA
Hillary	Thomas	EJCC-MN
Tami	Thomas-Burton	EPA-R4
Joe	Tiago	EPA
Akisha	Townsend Eaton	Companions & Animals for Reform & Equity
Kathy	Triantafillou	EPA
James	Trice	Environ Justice Coordinating Council (EJCC)
Johnathon	Truong	LASAN
Venus	Uttchin	govt
Kat	Vakhromeeva	CEEJH
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Sonita	Van der Leeuw	Iowa Environmental Council
Alicia	Vasto	Iowa Environmental Council
hector	Velez	USEPA
Carmen	Velez Vega	University of Puerto Rico
Esperanza	Vielma	EJCW
Marline	Vignier	HHS/OASH
Cynthia	Vitale	Colorado Attorney General's Office
Ashley	Voskuhl	ASDWA
Mary	Walker	Gulf Coast Ecosystem Restoration Council
Walt	Walker	Greeley and Hansen
Jess	Wallace	EPA
Jocelyn	Walters-Brannon	South Carolina depart of health and environ
Alan	Walts	EPA Region 5
Phillip	Washington	USDA
Cheryl	Watson	Blacks In Green
Lawrence	Weinstock	EPA
Angus	Welch	U.S. EPA

Katherine	Welty	Earthjustice
Zaria	Wetzel	University of Maryland
Chad	Whiteman	U.S. Chamber of Commerce
Odette	Wilkens	Wired Broadband, Inc.
Daniel	Wilkus	Evergy, Inc.
Stephanie	Williams	Maryland Department of the Environment
Jane	Williams	California Communities Against Toxics
Rebecca	Williams	Vermont DEC
Tracy	Williams	Advocate
Daphne	Wilson	EPA Region 4
Samuel	Winans	UMD CEEJH
Ginger	Wireman	WA Dept. of Ecology, Nuclear Waste Program
Leah	Wood	Washington State Department of Health
Zach	Yamada	WPRFMC
Carolyn	Yee	California Environ Protection Agency
Suzanne	Yohannan	Inside EPA
Karen	Youngblood	Cinergi Group LLC
Dani	Zacky	Sierra Club
Rachel	Zander	Iowa DNR
Steven	Zuiss	Koch