`

SUMMARY OF THE MEETING OF THE NATIONAL ENVIRONMENTAL JUSTICE ADVISORY COUNCIL

Arlington, Virginia
October 12 and 13, 2016

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 and/or transcripts of all NEJAC meetings, which are available on the NEJAC web site at https://www.epa.gov/environmentaljustice/national-environmental-justice-advisory-council. Copies of materials distributed during NEJAC meetings are also available to the public upon request. Comments or questions can be directed via e-mail to nejac@epa.gov.

NEJAC Executive Council Members in Attendance

Richard Moore, NEJAC Chair, Los Jardines Institute
Jill Witkowski Heaps, NEJAC Vice-Chair, Choose Clean Water Coalition
Javier Francisco Torres, NEJAC Vice-Chair, Border Environment Cooperation Commission
Gregory Bertelsen, National Association of Manufacturers
Charles Chase, University of Colorado-Denver
Kerry Doi, Pacific Asian Consortium in Empowerment (PACE)
Ellen Drew, Rural Communities Assistance Corporation
Mike Ellerbrock, Virginia Tech
Lisa Finley-DeVille, Mandan, Hidatsa, and Arikara (MHA) Nation Tomorrow
Rita Harris, Sierra Club
Erica Holloman, Southeast CARE Coalition
Cheryl Johnson, People for Community Recovery (PCR)
Rosalyn LaPier, Piegan Institute
Arsenio Mataka, California Environmental Protection Agency
Mildred McClain, Harambe House
Melissa McGee-Collier, Mississippi Department of Environmental Quality (by telephone)
Sylvia Marie Orduno, Michigan Welfare Rights Organization
Dennis Randolph, City of Grandview, Missouri
Cynthia Kim Len Rezentes, Mohala I Ka Wai
Deidre Sanders, Pacific Gas & Electric
Paul Shoemaker, Boston Public Health Commission
Horace Strand, Chester Environmental Partnership
Hermila "Mily" Trevino-Sauceda, Alianza Nacional de Campesinas
Sacoby Wilson, Maryland Institute of Applied Environmental Health
Beverly Wright, Dillard University

NATIONAL ENVIRONMENTAL JUSTICE ADVISORY COUNCIL
Arlington, Virginia
OCTOBER 12 and 13, 2016

MEETING SUMMARY

The National Environmental Justice Advisory Council (NEJAC) convened on Wednesday, October 12, 2016, and Thursday, October 13, 2016, in Arlington, Virginia. This synopsis presents highlights of the NEJAC members' deliberations during the 2-day meeting, including action items, requests, and recommendations; and briefly summarizes the issues raised during the public comment period.

1.0 NEJAC MEETING

This section summarizes highlights of the NEJAC deliberations during its two-day meeting.

1.1 Welcome and Introductions

On the first day, Wednesday, October 12, 2016, **Matthew Tejada**, the NEJAC DFO, noted the presence of a quorum and turned the meeting over to Richard Moore, the NEJAC Chair, and Jill Witkowski Heaps and Javier Francisco Torres, the NEJAC Vice-Chairs.

1.2 Welcome and Dialogue with U.S. Environmental Protection Agency Leadership: OECA

Cynthia Giles, Assistant Administrator for the Office of Enforcement and Compliance Assurance (OECA). Ms. Giles acknowledged NEJAC Chair Richard Moore, Vice-Chairs Jill Witkowski Heaps and Javier Torres, and new members Mildred McClain, Rita Harris, Erica Holloman, Arsenio Mataka, Gregory Bertelsen, and Sylvia Marie Orduno.

As a political appointee, this was Ms. Giles' last NEJAC meeting. She hailed NEJAC for its role over the past eight years in building environmental justice into rules and regulations. A key accomplishment was the launch of the Environmental Justice Screening and Mapping Tool, or EJSCREEN, which was created in response to one of NEJAC's recommendations.

EPA is formulating EJ 2020, its strategy for advancing environmental justice over the next four years. It intends to finalize the document by the end of October 2016, and reflects a broad and deep commitment to environmental justice across the entire agency, not just a single office or region.

Ms. Giles pointed to the consent decree with Volkswagen (VW), which not only removed polluting cars from the road, but required that VW invest $2.7 billion to reduce pollution in communities affected by the offending vehicles. States must submit a plan as to how they expect to spend the money allocated to them through the settlement, and explain how they will address areas that bear a disproportionate share of pollution incurred within their jurisdiction. The consent decree included several provisions about public participation and transparency, and a no-cost share component for vehicle improvement. $50 million have been set aside for use on tribal lands.

EPA has ramped up its focus on air toxics in fenceline communities and made sure that overburdened communities obtain relief first. A top priority is how to build in benefits for the communities that have been affected.

EPA's work on environmental justice is in sync with its Next Generation Compliance efforts. Both focus on what actually happens, and are intended to improve monitoring, make more information available to communities, and build compliance drivers.

Beverly Wright asked about the monitoring of air quality in areas affected by the BP oil spill.

Paul Shoemaker praised EPA for incorporating environmental justice issues into the VW consent decree, but wanted to know what was being done to ensure follow-through on the state plans.

Mildred McClain asked how the state plans would be monitored, and invited Ms. Giles to comment more on the no-cost share component.

Ms. Giles said she could not comment specifically on air quality monitoring in the Gulf, but that the BP oil spill settlement was intended to be adaptive to circumstances. The VW consent decree specifies that the money from the settlement can only be spent on certain types of projects, and includes many transparency requirements to ensure compliance among the states. The no-cost share component is intended to encourage more low income communities to participate in the program.

Sacoby Wilson commented on the impact of Hurricane Matthew in North Carolina, and asked how EPA was working with the Agency for Toxic Substances and Disease Registry (ATSDR) on surveillance and tracking to ensure a better response.

Melissa McGee-Collier asked whether state implementation plans would have to be modified based on EPA's review. Ms. Giles referred her to the Office of Air and Radiation.

1.3 Dialogue with U.S. Environmental Protection Agency Leadership: OITA and ORD

1.3.1 Thomas Burke, Deputy Assistant Administrator, Office of Research and Development (ORD)

Dr. Burke noted that one of ORD's priorities is climate resilience, working with communities to think about impacts across the board on health and sustainability. He recalled traveling to Flint, Michigan in the wake of the water crisis, and listening to a pastor say that the city needed safe water, not science projects. This exchange taught him that scientists need to ask the right questions and be prepared to have better answers. He met with Navajo leaders after the Gold King Mine disaster, and realized that the issue was not just water quality, but traditional values. He asked NEJAC to continue the role it has played in shaping science at EPA.

EPA Administrator Gina McCarthy gave Dr. Burke a mandate to base EPA science more on public health and communities, and to translate it so it was more understandable. ORD has recently made breakthroughs in the recognition of heart disease as an environmentally related disease. Air pollution has increased mortality around the world with its effects on respiratory and cardiovascular health. ORD is working on a healthy heart program. One top priority is a community-focused environmental risk screening tool to help communities understand the challenges they face; another is citizen science, which enables citizens to take their own measurements and put things in perspective for their own communities. Dr. Burke believes the fundamental change will be getting to ask the right questions, and understanding the many elements of building a healthy community.

1.3.2 Randy Hill, Deputy Assistant Administrator for the Office of International and Tribal Affairs (OITA)

Mr. Hill conveyed the greetings of Jane Nishida, OITA's Principal Deputy Assistant Administrator, who was returning from a trip to Ghana with Administrator McCarthy. EPA has been working with the State Department, the United States Agency for International Development (USAID) and communities in Ghana to improve the quality of their drinking water, and access to it.

OITA's mission is to lead EPA's interactions with sovereign nations both foreign and domestic. In 2009, EPA reorganized its Office of International Affairs to include the American Indian Environmental Office. Mr. Hill considers OITA's most significant accomplishment over the past eight years to be the issuance of the environmental justice policy on working with tribes and indigenous peoples in 2014. The EJ 2020 plan has a chapter dealing specifically with tribes and indigenous peoples. EPA has entered into a memorandum of understanding (MOU) with six other federal agencies affirming a commitment to protect tribal treaty rights relating to natural resources.

OITA works with the State Department and individual foreign governments on issues of environmental concern. In 1994 Canada, Mexico, and the U.S. jointly created the Commission on Environmental Cooperation (CEC). At the most recent CEC meeting, the three countries agreed to create a roster of experts on traditional ecological knowledge.

Chair Moore asked Mr. Hill to comment on the situation with the Standing Rock Tribe in North Dakota, and EPA's role. Mr. Hill said Administrator McCarthy had met with Tribal Council President Dave Archambault II, and EPA was consulting on matters within its scope. The White House is setting up a process to ensure multiagency coordination and consultation.

Vice-Chair Heaps asked about ORD's work on contaminants of emerging concern (CECs), if EPA was closer to new water quality standards on any CECs, and about ORD's response to criticism by the Science Advisory Board (SAB) of EPA's fracking impacts report.

Arsenio Mataka observed that in a few years local communities may have more street-level air pollution data than regulators and industry, and asked what EPA's role would be.

Ellen Drew noted the Navajo have identified the lack of accurate and precise rural addresses among their people as a problem.

Dr. Burke acknowledged there were many CECs for which there was no guidance, and that setting a maximum contaminant level was a lengthy process. EPA was developing a water action plan; ORD's role was to provide the plan's scientific basis. There were multiple interpretations of the science in EPA's fracking study. EPA is rewriting its report to address the concerns of the SAB, and hopes to release it in December. Dr. Burke agreed that citizen science will soon provide more data than regulatory monitoring, which will create scientific challenges for interpreting data. ORD is committed to working with the broader scientific community on this. He commended Member Drew for her work with the Navajo on rural addresses, and added there were technologies available to help with the process.

Sacoby Wilson pointed out that none of the Centers of Excellence on Environmental Health Disparities funded by EPA and the National Institutes of Health were in the south, and none were historically black colleges and universities (HBCUs). He asked about ORD's relations with the National Science Foundation (NSF), the Department of Housing and Urban Development (HUD), the United States Department of

Agriculture (USDA), and other federal agencies, and what OITA was doing to address the concerns of the Lumbee, an unrecognized tribe in Wilmington, North Carolina impacted by Hurricane Matthew.

Mike Ellerbrock noted there were a lot of people like the pastor in Flint who were interested only in safe water, not in science, and proposed working through the schools to educate children.

Kerry Doi praised the goals of the U.S.-Brazil Joint Action Plan to Eliminate Racial and Ethnic Discrimination and Promote Equality, but claimed its acronym, JAPER, was offensive to people of Japanese ancestry.

Lisa Finley-DeVille said the tribal government in her community, the Fort Berthold Reservation, had not provided opportunity for public comment on the Dakota Access Pipeline even though it had been requested. No environmental impact statement had been completed for the pipeline, as required by the National Environmental Policy Act (NEPA), and the industry was not being held accountable for the cleanup of a recent spill.

Erica Holloman asked what ORD could do in helping to better understand the chemical constituents of ambient air pollutants, and where the verification process was for the models and tools being implemented.

Mildred McClain asked Mr. Hill to explain the criteria and process for engaging foreign governments, how stakeholders were involved, how environmental justice was integrated across those programs, and how OITA interacted with NEJAC.

Dr. Burke allowed that ORD might need different reviewers on its grant selection process. The core issue is funding, and ORD would need NEJAC's help in increasing the funding base. ORD had a rich amount of monitoring, but there was only so much regional monitoring could do. Dr. Burke supported Member Ellerbrock's idea of an education campaign.

Mr. Hill said OITA works primarily with federally recognized tribes. The 2014 environmental justice policy addresses working with individual communities that were not specifically recognized. Mr. Hill promised to follow up with Region 4 on its work with the Lumbee. He noted that he had always pronounced the acronym for the U.S.-Brazil Joint Action Plan "jay-per," but apologized for the offense it had caused, and promised to forward Member Doi's concerns to his office and to the State Department. He said he would follow up with EPA Region 8 on the situation at the Fort Berthold Reservation. There was no single set of criteria for engaging with foreign governments. OITA worked closely with the State Department and USAID.

Chair Moore asked Dr. Burke to report to NEJAC about progress on funding for HBCUs and land grant institutions in terms of the Office of Civil Rights (OCR) by 2017. Dr. Burke promised to submit his report before then.

1.4 Dialogue with U.S. Environmental Protection Agency Leadership: Regional Administrators

1.4.1 Alexis Strauss, Acting Regional Administrator, Region 9

Region 9 covers the Pacific Southwest. Ms. Strauss commented on the worker protection standard, which will be effective in January. Over half the agricultural migrant workers in the U.S. are in Region 9 at one time or another. Region 9 accounts for a large percentage of the pesticides used in this country.

The office has put together specific plans on reaching community outreach and health workers on pesticide safety, setting the stage for the worker protection standard. Region 9 is working with California on a mobile phone-based application that will allow people to report pesticides and worker protection violations anonymously. A big challenge has been reaching the thousands of small drinking water systems across the region. Region 9 has had to work effectively with the states to know each system's compliance status, how best to invest infrastructure money, and bring compliance actions when necessary.

1.4.2 Shawn M. Garvin, Regional Administrator, Region 3

Mr. Garvin commended Vice-Chair Heaps for her work incorporating environmental justice and diversity into the Chesapeake Bay Agreement of 2014. He pointed to the relationship Region 3 has had with Member Strand's home city, Chester, Pennsylvania, for over 20 years, and the region's work with Member Holloman's Southeast CARE Coalition in the city of Newport News, Virginia.

Historically Region 3 has pursued brick-and-mortar solutions, but green infrastructure allows EPA to have water quality and larger footprint benefits for the community. Mr. Garvin pointed to an initiative in Baltimore to deal with abandoned property.

1.4.3 Arturo Blanco, Director of Environmental Justice, Tribal, and International Affairs, Region 6

Region 6 had taken aggressive steps to build relationships in each of its five states with all 66 federally recognized tribes, colonias along the Mexican border, and partners in Mexico. Regional Administrator Ron Curry would like to hold workshops in all five states, where the region would listen to the concerns of community members and incorporate them into action plans. An environmental justice summit was held this year.

Chair Moore commented that regions represented the first line of communication with grassroots communities. He noted that NEJAC had previously recommended listening sessions, and commended Region 6 for doing that. He pointed out that Regions 6 and 9 shared a lot of issues being along the U.S.-Mexico border, and at one point NEJAC had considered recommending the creation of a separate region in the border area. He added that tribal governments were present in multiple EPA regions, and noted a potential adverse effect if different regions were not on the same page.

Hermila Trevino-Sauceda said her organization, Alianza Nacional de Campesinas, represented a large section of rural California, including many children with special needs because of pesticide use. She asked how Region 9 could be involved in this issue, whether there was an interagency working group within the state of California, and if the various farmworker groups were involved. She stressed the importance of providing education in multiple languages, and in the appropriate cultural context of communities. She noted that the number of farmworkers in California was much larger than the official count because of human trafficking and a large number of people not aware of their rights.

Dennis Randolph expressed concern over the way funds trickle down to small cities. He pointed out there were several different metrics for evaluating how a community could handle federal money. He added that not all states bought into the concept of environmental justice, and that EPA tended to treat those states with the carrot, which in turn gave small communities the stick. He asked the regional representatives about their willingness to confront such states.

Horace Strand commented that he had been involved with environmental justice for over 20 years, and noted how helpful Region 3 had been during that time listening to the community.

Mr. Garvin said Region 3 strove to improve its efforts to ensure the opportunity for community input. He had met with his counterpart in Region 6 on the subject of listening sessions. He cautioned EPA did not have the deepest pockets, so it often partnered with other federal agencies in getting aid to local communities.

Ms. Strauss said that State Revolving Funds (SRFs) represented the largest part of EPA's budget in each of its 10 regions. Each state put together a plan subject to EPA review and approval, and in many cases those funds were specific to smaller cities. She did not believe there was an interagency working group with respect to pesticides and agricultural workers, but offered to explore the possibility with the Department of Pesticide Regulation in California.

Mr. Blanco noted a workshop in Oklahoma in which the Oklahoma Department of Environmental Quality (ODEQ) and other health agencies participated, and that a similar workshop in Arkansas also proved fruitful. Four of the five states in Region 6 participated in the environmental justice summit earlier that year.

Cheryl Johnson said she had not observed any participation from her home region, Region 5, during her time on NEJAC, and recommended that a representative from Region 5 be invited to address the next Council meeting.

Erica Holloman mentioned the possibility of regional pipelines connecting environmental justice communities to one another. She stressed the need for a systematic way of tracking, following up, and being held accountable.

Paul Shoemaker expressed concern about the potential for unintended consequences like gentrification, and proposed that NEJAC discuss what tools EPA had available to address that issue at a future meeting.

Beverly Wright noted there were communities heavily impacted by landfills in the Deep South, but no prospect for a standard on hydrogen sulfide outside the workplace. She pointed to the Agriculture Street Landfill community in New Orleans, which had been labeled a Superfund site but whose cleanup was never fully completed, and asked if there was someone from EPA looking into the situation. She commended EPA for developing a phone app for workers.

Deidre Sanders expressed concern over smart growth and densification and its implications in terms of exposures, mitigation, and permitting for industrial facilities, perceiving disconnect between the drivers of local land use planning and the philosophy of smart growth.

Mildred McClain reiterated the importance of action and follow-up in a timely manner.

Sacoby Wilson noted an emerging environmental catastrophe in Brandywine, Maryland, and called for EPA to do a better job enforcing Title VI. He encouraged EPA to take advantage of opportunities for interagency engagement. He added that there were many children impacted by environmental justice issues, and urged EPA to do more to address the situation.

Beverly Wright commented that communities wanted research, but they did not want researchers coming in, collecting data, and disappearing.

Chair Moore noted that this was a period of transition, and encouraged EPA not to forget the commitments made by this administration and Administrator McCarthy around environmental justice.

1.5 Dialogue with U.S. Environmental Protection Agency Leadership: OAR & OCSPP

1.5.1 Jim Jones, Assistant Administrator, Office of Chemical Safety and Pollution Prevention (OCSPP)

On June 22 President Obama signed into a law a reform of the Toxic Substance Control Act (TSCA). The reform passed both houses of Congress with overwhelming bipartisan support. TSCA governs the manufacture, use, and disposal of chemicals. OCSPP is working to implement the new statute, and plans to propose a couple restrictions before the change in administration. This past year OCSPP finalized a law adopting California's restrictions on formaldehyde and composite wood products and applying them on a national scale.

Mr. Jones reported receiving good feedback on the worker protection standard from NEJAC and other stakeholders. The rule was finalized about a year ago, and is now in the implementation phase. Together with EPA Region 9, OCSPP is crafting an implementation tool allows farmworkers to notify EPA and state agencies of a violation. It is on the verge of a regulation which will increase certification and training requirements for use of the most dangerous pesticides.

1.5.2 Janet McCabe, Acting Assistant Administrator, Office of Air and Radiation (OAR)

Ms. McCabe said OAR had issued many key rules for protecting public health, particularly in vulnerable communities. She cited the Mercury Air Toxics Rule, as well as a variety of mobile source rules affecting the toxics coming out of tailpipes in neighborhood streets and rural communities, and refinery rulemaking arising out of concerns raised by fenceline communities.

OAR's non-rule programs include the Diesel Emissions Reduction Act Program, which provides funding to help pay for cleaning up mobile engines, and a new Ports Initiative, which will help reduce emissions from diverse point sources.

OAR has tried to institutionalize its approaches, concerns, considerations, and tools to participate more meaningfully in EPA's regulatory and non-regulatory work so that decisions can be made in a timely way. Staff has ramped up communication with community groups in the form of conference calls and webinars.

This administration has been concerned with climate change, particularly for vulnerable communities. OAR has a series of rulemakings to reduce emissions of carbon dioxide. Ms. McCabe expressed pride over a report on climate and health impacts, which includes state-by-state fact sheets targeted to particular audiences. OAR has taken outreach to its greatest extent with CPP, although the rule was stayed by the U.S. Supreme Court. It is particularly engaging with people on the Clean Energy Incentive Program (CEIP), an opportunity for states to advance clean energy investment, particularly in low income communities.

The indoor air quality programs do not get much funding, so EPA must work closely with federal and state agencies, as well as any group that will partner with it. The Centers for Disease Control and Prevention (CDC) is showing for the first time that the gap in asthma visits to the emergency room between minority and white children is decreasing. Ms. McCabe attributes this to the success of public education campaigns.

Rosalyn LaPier agreed that NEJAC should address issues related to farmworkers, including migrant farmworkers, adding that she grew up in a family of migrant farmworkers and that she and many of her relatives had a rare neurological disorder. She suggested EPA work with the Indian Health Service to document those medical conditions and/or work with native communities to address the issue. She

added that the Fort Berthold Indian Reservation was considered a "sacrifice zone," dealing with air pollution, water pollution, and environmental degradation because of oil and gas work, and that the federal government was obligated by treaty to address the problem.

Rita Harris asked how often EPA reviewed chemical substances. She noted aluminum dross was wreaking havoc across the state of Tennessee, but was not classified as a hazardous waste.

Cynthia Kim Len Rezentes observed that much was said about EPA's successes, but wondered whether those accomplishments were felt at the state and local levels. She felt EPA should continue to have the responsibility to oversee what guidelines and rules were put together at those levels. She recalled sitting for three years on a pesticides advisory council rewriting state laws and regulations. She observed that NEJAC seemed to be reacting to the last disaster at every meeting and questioned why it was not taking a more proactive, preventative approach.

Gregory Bertelsen noted that the CEIP was designed to address the relationship between economic development and environmental justice. He urged EPA to consider similar programs under different regulations, to pursue a policy of technology neutrality, to ensure that emerging and existing technologies that achieved the designed impact of a regulation were not excluded.

Ellen Drew mentioned that her background was in pollution prevention, and asked to know more about how EPA was helping to systematically reduce or eliminate the use of pesticides and other hazardous chemicals.

Hermila Trevino-Sauceda asked about the possibility of encouraging states to have interagency working groups. She pointed out that several years ago the National Alliance of Farmworker Women came to Washington and met with EPA and other federal agencies at USDA, and members from various states shared their concerns. The main takeaway from the meeting was the sense of a need to connect agencies with communities. Member Trevino-Sauceda asked that farmworkers be invited to participate in any interagency working group. She noted a lack of trust in farmworker communities in response to anti-immigrant sentiment, so that trust needed to be built. She added that there was concern that farmworkers, including women and various age groups, were not being involved in the contracts for the materials being prepared. She asked that communities be made aware of emergency procedures for Application Exclusion Zones (AEZs). She insisted on the participation of community-based organizations, and that training materials take into account cultural context.

Deidre Sanders appreciated the research on the health impact of climate change, but felt a sense of disconnect on CEIP, which was directed around incentives to low income communities. She added that the definitions of low income and disadvantaged communities would be left to the states, and feared that the terms "low income community," "disadvantaged community," and "environmental justice community" would be used interchangeably, which could reduce the priority of socially and economically disadvantaged communities. She called for clarity on the intent of the program, defining prioritized communities as those most likely to be adversely affected by the effects of climate change. She did not see that with CEIP in its present form.

Charles Chase felt that EPA was behind the curve with a lot of its rules for chemicals. He asked what the Agency was doing to catch up.

Lisa Finley-DeVille commented that the Fort Berthold Indian Reservation, where she lived, had gas flaring and venting on 1,500 wells. She noted that the tribal government was not enforcing environmental justice regulations, and was not allowing residents to submit public comment. She recounted how her

son, an environmental scientist, performed a test with a hydrocarbon kit, and that seven horses had died. Several other studies, including one by Duke University, showed adverse effects from the oil and gas.

Kerry Doi said he did not normally agree with industry, but that he supported Member Sanders' comments about CEIP. He asked whether there were worker protection features in the diesel grant program, citing frequent accusations of wage theft by fleet operators. He noted claims by natural gas advocates that compressed natural gas (CNG) and liquefied natural gas (LNG) were much cleaner than diesel, but observed that electricity was needed to power them up, thus increasing the carbon footprint. He asked whether EPA had a perspective on the issue.

Beverly Wright commented that she was from New Orleans, and that Louisiana was experiencing a boom in construction jobs. She noted that the rise in natural gas might be working counter to efforts to reduce greenhouse gases. She expressed concern that there did not seem to be any way to control or regulate the trend. She asked to see research on natural gas and its impact on communities. She pointed out that Louisiana had a considerably higher cancer rate than the national average.

1.6 Community Voices Panel

1.6.1 Claire McClinton, Flint Democracy Defense League Water Task Force, Flint, Michigan

Ms. McClinton began her presentation by showing photographs of the water crisis in Flint. She said there was a lack of trust among Flint residents in their government. People in Flint feel abandoned and that their voices have gone unheard. Life in the city has not qualitatively improved since April 2014, when it began receiving water from the polluted Flint River. This distrust is felt towards all levels of government, federal, state, and local.

It was grassroots persistence that brought the issue to national attention. Ms. McClinton cited the help of individuals like Mike Edwards of Virginia Tech and Dr. Mona Hanna-Attisha and organizations like the American Civil Liberties Union (ACLU). There is also a new mayor in Flint determined to resolve the crisis. Ms. McClinton did not list EPA as one of the actors on the ground working to make things better. Instead she gave credit to organizations like Flint Water Class Action, Water you Fighting For, the Flint Democracy Defense League, and Water Warriors United.

In addition to having a water problem, Flint also had a democracy problem. Had it not been for Michigan's emergency manager law, this tragedy might have been avoided. It was the governor's appointed emergency manager who switched the city's water supply. As Ms. McClinton observed, neither Flint residents, the mayor, nor the city council had any say about the switch.

Ms. McClinton said most residents were suffering from stress and/or post-traumatic stress disorder (PTSD). What they find most outrageous is that the government knew what was going on, tried to hide it, and is still refusing to do the right thing. Ms. McClinton pointed to a leaked memo in which a supervisor in EPA Region 5 appears to profess reluctance to go out on a limb for Flint. She also cited a letter from EPA's Miguel Del Toral to the Michigan Department of Environmental Quality (MDEQ) warning that the Flint River was unsafe that was dismissed as the words of a rogue employee.

When the EPA finally came to Flint, it talked to what Ms. McClinton termed the "establishment community" while ignoring the grassroots community. It assured residents that the water was now fine if they used filters, but Ms. McClinton pointed out that filters did not weed out bacteria, citing a rise in Legionella cases in the city. The day after EPA's declaration, the Genessee County Medical Society said

children, the elderly, and people with compromised immune systems should continue to use bottled water.

Ms. McClinton asked that (1) Flint be declared a federal disaster area, (2) full Medicare be made available for every Flint resident, and (3) the Michigan emergency manager law be abolished.

1.6.2 Sylvia Orduno, Michigan Welfare Rights Organization, Detroit, Michigan

Member Orduno began her presentation with a video of the president of the Genessee County Hispanic/Latino Collaborative to show how certain communities are additionally impacted when information is not available in a way people can access and understand. When the video ended, she told NEJAC that the Michigan Welfare Rights Organization was founded 40 years ago as a poor people's organization. She stressed the importance of looking at the economic and political causes of the Flint water crisis, not just the consequences. She told the story of a woman whose baby was born with defects because she did not speak English, did not understand the warnings, and drank the contaminated water.

When the National Guard came to Flint, it made the Latino community nervous, because it coincided with a spate of immigration raids around the country, and a large number of Latinos had criminal records.

The Michigan Welfare Rights Organization has been trying to call public attention to a series of water shutoffs in Detroit over the past 10-15 years. Even before the present water crisis, many Flint residents, such as Billie Williams, the mother of two adult children, had had their water shut off because they could not afford to pay their bills. EPA seemed insensitive to the plight of these people, only getting involved to tell cities like Flint and Detroit they were violating the Clean Water Act. Teachers are afraid to ask students if they have water at home because they are required to report families that do not, in which case children might be separated from their parents.

Member Orduno said her organization was striving to highlight the connection between water shutoffs, lead contamination, inaccessibility, and other factors. This is more than just an accessibility problem; people's basic human rights are being violated. Member Orduno stressed the need to repair pipes and other infrastructure nationwide.

Water services must be affordable. In recent years, there has been a 120 percent increase in the cost of water bills in Detroit and surrounding municipalities. Member Orduno insisted that no one chooses to live without water. The Michigan Welfare Rights Organization called for translation and interpretation services, the development of policies and laws not requiring identification, and expediting the visa process. Member Orduno stressed the difference between water affordability and water assistance. Water assistance was a short-term solution to a long-term problem.

Member Orduno added that the public health aspects of the water crisis must be better addressed. When the surgeon general visited Flint, residents informed him that it was impossible to get to the root of the problem without addressing the issue of shutoffs.

There are almost 20 cities across the country that allow for emergency managers to control local finances. Member Orduno said this problem was not unique to Michigan. These managers shift blame for the economic situation onto the most vulnerable elements of society, and the problem must be addressed.

1.6.3 Paula Flores-Gregg, Environmental Protection Agency Region 6, Dallas, Texas

Sandbranch, Texas is 16 miles south of Dallas, one of the communities Ms. Flores-Gregg serves as the environmental justice coordinator for the state of Texas. She considers Sandbranch one of the most challenging and rewarding efforts she has worked on. She introduced Eugene Keahey, pastor of Sandbranch's Mount Zion Baptist Church. She informed NEJAC that Sandbranch has been on bottled water for 30 years. In a single year, 55 organizations and 500 volunteers have come together over this issue.

1.6.4 Pastor Eugene Keahey, Sandbranch Development and Water Supply Corporation, Sandbranch, Texas

Dallas is the seventh wealthiest city in America, and Dallas County is the ninth wealthiest county. Sandbranch, home to over 600 residents at one time, has one of the oldest churches in Dallas County. Pastor Keahey showed NEJAC a video of Sandbranch today.

An unincorporated community, Sandbranch has had to deal with unregulated hog pens since the 1960s, as well as sand and gravel pits and junkyards. In the 1980s the city of Dallas built a wastewater treatment plant near Sandbranch. Despite the proximity to the plant, Sandbranch lacks water and sewer services. Pastor Keahey mentioned Ms. Parker, a Sandbranch resident who pumped water from her well eight or nine times a day for her family. Shortly after the plant was built, Dallas County health officials reported that two-thirds of the wells in Sandbranch were contaminated. Residents of Sandbranch asked the city of Dallas to annex their community so they could receive city services. The city refused, claiming it was not worth the trouble.

In 2003 Sandbranch was declared a flood zone; it had a one percent chance of flooding over a 100-year period. This classification meant that no improvements could be made to houses built before 1980. Residents living in houses built after 1981 were allowed 30 days to raise their residence 10 feet off the ground, or they would have to sell their property. The average home sold for $350.

Since then Mount Zion Baptist Church has taken a leadership role in protecting the community. It is a place where residents can come at any time, day or night, and receive a bottle of water. It crafted a survey asking residents about their needs. In response it created Project DreamHaus, a grassroots organization dedicated to building things the community needed, including the Bert Roy Food Pantry, which provides food, clothing, job and school supplies, etc. The church has also created a scholarship fund to help its children go to college. It has partnered with the Texas Woman's University nursing department to address health concerns.

Pastor Keahey created an advisory board, many of whose members accompanied him to the NEJAC meeting. The board developed a strategic vision for Sandbranch. In March 2016 Sandbranch created its own water supply corporation to meet federal, state, and local requirements to receive water. The corporation has secured a $30,000 SEARCH Grant from USDA to map out its water system infrastructure. Sandbranch has a network of over 500 faith-based and community supporters. The community now has a voice it can believe in.

Sandbranch's first goal is to build a water and wastewater system. It is seeking a grant from USDA Rural Development, while welcoming small donations. It has a developed a master plan for community resilience. The plan includes building new homes through grants from HUD and nongovernmental organizations (NGOs). Sandbranch plans to apply for grants from EPA for trash pickup so that residents

will not have to burn trash illegally. It intends to build a network with similar communities which it can mentor.

1.6.5 Pam Nixon, People Concerned About Chemical Safety and Ohio Valley Environmental Coalition, Huntington, West Virginia

West Virginia has an abundance of natural resources, including timber, coal, oil and gas, water, and salt. The situation is sometimes dicey with logging trucks sharing mountain roads with the public. There is limited flat space; resources are often extracted through mountaintop removal. Storm-water drainage can cause flooding to low-lying communities. There is currently a large gas boom due to Marcellus shale and Utica shale. Fractionation plants are often built atop ridges. Marcellus drill sites typically take up five acres of land and create large collections of dust; trucks emit large amounts of diesel fuel, which often goes across the fenceline. Water in West Virginia is used for recreation and transportation, with an extensive barge system.

In 2014 Freedom Industries was responsible for a huge chemical spill of 4-Methylcyclohexanemethanol (MCHM) 1.5 miles upstream of a water intake. The spill affected 300,000 people across nine different counties. Residents were unable to bathe, drink, wash clothes, or brush teeth. Local utilities did not have enough water in reserve, so they were unable to shut off the contaminated supply.

Institute, West Virginia, a community in the Kanawha Valley, is the site of a chemical plant. The plant is adjacent to the campus of West Virginia State University, an HBCU with 3,500 students which recently celebrated its 125th anniversary. It has been owned by many companies over the years and is actually larger than the Institute community; its current owner is Bayer Crop Science. An aldicarb oxime leak in 1985 led to the hospitalization of 135 residents. In 1991, then-owner Union Carbide was cited for Clean Water Act violations and forced to pay a settlement. A 1993 explosion in the Larvin unit killed one worker and caused people to shelter in place. A fire and explosion at Larvin in 2008 killed two workers, injured eight, and caused thousands to shelter in place. In 2010 Bayer Crop Science reached a settlement with EPA in which it agreed to stop manufacturing certain harmful chemicals. Now, however, locals fear that the company is starting to revitalize its brownfields.

A company called U.S. Methanol is trying to take advantage of the ongoing gas operations in West Virginia and locate two methanol facilities in Kanawha County, one of them near Institute, the other near Belle. The one going to Institute was made in Brazil in 1965, and will be disassembled, shipped to the U.S., and reassembled. Institute was chosen because of the available infrastructure, including a natural gas pipeline. The pipeline is old, and there are some concerns over the safety of its continued use. Belle is incorporated; Institute, which is 60 percent minority, is not. The owners have no experience in the methanol industry and have said they have no direct knowledge on how to run the plant. Locals are concerned about their ability to operate the plant safely. A few years ago, a pipeline burst in Kanawha County and burned all the way across the interstate, stopping traffic. The community of Institute asked for an emergency route. What it received is a one-lane road that is blocked off and chained.

Ms. Nixon presented NEJAC with her organization's recommendations for EPA: (1) ensure all new natural gas and chemical facilities are built with an inherently safer design; (2) standardize materials used in the making and design of above-ground storage tanks; (3) develop more stringent federal spill prevention regulation for all industrial above-ground storage tanks; and (4) continue to reduce emissions, especially fugitive emissions, around chemical facilities. Rules and regulations for above-ground storage tanks are in the works.

1.6.6 Angie Rosser, West Virginia Rivers Coalition, Charleston, West Virginia

West Virginia Rivers Coalition is a statewide nonprofit concerned with water quality issues that is beginning to understand its work in the context of environmental justice. It has adopted some value and belief statements about access to clean water for all people and making a connection around sustainable communities, public health, shared prosperity, and economic security.

The Freedom Industries oil spill was the catalyst for the Safe Water for West Virginia program. Of the 300,000 affected by the spill, about 100,000 reported physical symptoms like skin and respiratory irritation, nausea, diarrhea, and headaches. The leak occurred on the second day of the state legislative session, so protests and rallies were organized outside the capitol. The rallies created the sense that clean water was not just an environmental issue, but a human rights issue, and led to the creation of the West Virginia Safe Water Roundtable.

There is considerable sentiment in West Virginia that regulations will kill jobs, which does not make sense when the water is poisoned. A contaminated water supply makes a vital economy virtually impossible. The coal economy is declining, but politicians are promising to restore the industry to its former glory. Meanwhile there seem to be few economic opportunities in the state outside of coal. The burning of coal has led to elevated mercury levels in the Kanawha and Ohio Rivers. The Kanawha Valley has been nicknamed "Chemical Valley." The state has become a sacrifice zone for energy and manufacturing.

Ms. Rosser mentioned another recent disaster, a CSX oil train derailment and explosion along the Kanawha River just upstream from Charleston. The fracking boom has transformed rural communities into industrial complexes. There is a growing concern over the volume of toxic waste that these operations produced. The state government seems to have no long-term view of how to handle or dispose of the waste, which has largely gone into landfills and underground injection wells.

In late June 2016, West Virginia experienced massive flooding, impacting many communities, including Ms. Rosser's own, even though it was not in the flood zone. The flooding has left many people without means of transportation. The recovery process has taken a long time; Ms. Rosser has been without a kitchen for three and a half months.

Ms. Rosser is proud of the resilience her state has shown, and the growing sense that West Virginia needs clean water. A prominent hashtag is #wvstrong. However, it needs to be more proactive in preventing future disasters. Even after the water was deemed safe, one could still smell chemicals in the drinking water.

The West Virginia Rivers Coalition has witnessed the emergence of new activists. There is a widespread sentiment that the government is not doing its job, and that officials must be held accountable. In the wake of the chemical spill, a law was passed mandating source water protection plans. A public water system study commission has been established. Unfortunately above-ground storage tank regulations were rolled back just a year after their enactment, and a promised medical study has not occurred. There are 50,000 above-ground storage tanks in West Virginia, only 17 percent of which were improved to meet the short-lived standards.

The coalition was asking EPA to push forward a rulemaking process under the Clean Water Act around the spill prevention of hazardous substances. The EPA has scheduled a public input session in Charleston on November 2, and has plans for two more. Ms. Rosser invited the Council to suggest possible locations for those sessions. She hopes to hold EPA's feet to the fire to make sure this responsibility and

commitment is met. A second recommendation centers on source water protection and infrastructure. It encourages utilities to explore backup water sources. The plan is expected to cost $350 million statewide. Ms. Rosser asked EPA and NEJAC to look at ways to fund the program, possibly through SRFs or Clean Water Act 319 funding.

Ms. Rosser recalled meeting with a group of mothers whose wells had black water and were afraid to tell people. Her recent experience in West Virginia has reminded her of the aftermath of Hurricane Katrina; some have managed to get out, while others have been left behind. She mentioned that the front-runner in the West Virginia gubernatorial race had been cited for over 23,000 water pollution violations.

Chair Moore reiterated NEJAC's belief that clean water was a human right, not a privilege. He commented that the Council had received extensive testimony about water crises. He reminded the Council of its discussion the previous day during its business meeting on recommendations. He pointed out that this was a transition period, which NEJAC should not take lightly. The Council must ensure a response to its recommendations. He noted the West Virginia state government's hostility toward EPA, and promised to attend the November 2 listening session. He referred to the lack of drinkable water in Sandbranch and Flint as a disgrace. He said the concept of environmental justice depended on communities speaking for themselves, and assured the presenters their recommendations would be presented to the EPA Administrator.

Dennis Randolph said he was a registered engineer, which did not mean he did not make mistakes, but did mean he could lose his license if he did. EPA had requirements that engineers be registered, but there were exceptions in the federal government and private industry. He mentioned that the director in Flint was not a registered engineer, and called for the elimination of industry exemptions.

Lisa Finley-DeVille mentioned issues with shellfish in Pennsylvania, and noted that her own tribal government was often not receptive to the environmental justice needs of her community.

Deidre Sanders spoke about land use planning and the legacies of past planning decisions. She observed that Census-designated places (CDPs) were at the mercy of county planners. She compared it to the movie Twins, where one twin was genetically engineered to be perfect and the other was stuck with undesirable residual effects. She stressed the importance of community plans as a means of attracting desired development, and urged the presenters to get involved whenever their respective counties update their general plans.

Erica Holloman recalled making a presentation to NEJAC before she became a member. She felt PTSD with respect to environmental trauma was understated. She praised communities for their resiliency, but noted that people were tired of having to be resilient. She asked how NEJAC could support presenters' recommendations and solutions in a way that there was follow-up and support. She also stressed the importance of peer-to-peer learning.

Beverly Wright said this was one of the hardest panels she had had to listen to in a long time. She had survived Hurricane Katrina and breast cancer. She thought she had heard everything, but she found the story of Sandbranch shocking. She pointed out that clean water could help eradicate many diseases. She added that progress on environmental justice was the result of community education and advocacy. The political system only responded when it had to. She noted that in many parts of the country people tended to make excuses for the fossil fuel industry because of its role in the economy. She encouraged the panelists to go before other, more powerful bodies. She invited everyone to the HBCU conference in March; the focus would be on living with water.

Sacoby Wilson expressed anger at the panelists' stories. He noted that the events in Flint raised issues of race, class, and vulnerability, and that the emergency manager law in Michigan had been disproportionately applied to majority-minority communities. There were unincorporated freedman-founded communities like Sandbranch across the south that lacked access to basic amenities; that was environmental racism. He referred to what was happening in West Virginia as environmental terrorism. The Clean Water Act and Safe Drinking Water Act had failed in each of the presenters' communities. He stressed the need for funding accountability, to ensure that federal funding was going to the people who needed it the most.

Cynthia Kim Len Rezentes said she could not imagine not receiving clean drinking water from the tap. She mentioned the Council would receive a water charge the following day, and that it would need to consider how to get clean water to the communities that needed it. Different kinds of creative solutions were necessary. She noted the absence of the Federal Emergency Management Agency (FEMA) from the interagency working group. Environmental catastrophes could occur at a moment's notice, and FEMA should be an indispensable resource.

Mike Ellerbrock attributed the crises above not just to failure of government, but also failure of religion. The evangelical movement in America was powerful, but was conveying the wrong message that God rewarded success. The true message of evangelism was that God loved the poor.

Mr. Tejada acknowledged the presence of those listening in on the phone. He urged attendees to register for public comment. He invited EPA employees to sit in the chairs near the Council table to make room for the general public.

1.7 Dialogue with U.S. Environmental Protection Agency Leadership: OLEM

Mathy Stanislaus, Assistant Administrator for OLEM, spoke of the implementation of the President's executive order on chemical plant safety. OLEM has put in place a computer-aided tool to analyze the potential areas of a community that would be impacted from an accident or explosion. It has integrated data from various federal agencies to better examine compliance. A joint inspection has been put in place.

One of the takeaways from a series of community meetings was the need for communities to have more of a direct role in planning. OLEM issued a guide to local and state governments as well as the local emergency planning committees and state emergency response organizations to underscore this need. The guide highlights the particular circumstance of fenceline communities to ensure that its particular issues are considered. It notes opportunities under the Emergency Planning and Community Right to Know Act. OLEM is in the midst of a rulemaking under the risk management of programs. It hopes to move forward on that shortly.

Mr. Stanislaus believes revitalizing the most distressed communities has to go beyond individual properties. The Area-Wide Planning Program enables broad visioning and market and infrastructure studies of communities. Communities are able to deal directly with issues of equity, and make their own plans. OLEM has a unique strategy to break down historic silos. It has engaged HUD in the process. It considers this the first step in reorienting economic development resources throughout the federal government.

One of the issues OLEM deals with is hazardous waste recycling and the impacts on low income communities and communities of color on the impact of mismanagement by third-party recyclers. Under the Solid Waste Rule, OLEM conducted a comprehensive environmental justice analysis. As a result, it

strengthened requirement on those recyclers. It established a requirement to perform a cumulative impact analysis.

Mr. Stanislaus has made it a priority to ensure the community voice is brought in early, and to determine how to best incentivize authentic participation. He hopes such participation will be included in the EJ 2020 program. OLEM is examining a life cycle-based perspective, looking at all the impacts of the management of materials in the economy. The flow of materials in the U.S. economy is due to about 42 percent of greenhouse gas emissions in the U.S. inventory. A more holistic look at materials has been put in place.

Mildred McClain asked about environmental justice communities near federal facilities, which bore a separate burden of environmental injustice as it related to hazardous waste. She noted an earthquake near the Savannah River Site, which had previously been deemed impossible. She asked if there was guidance to the local emergency planning committees on what would be done.

Rita Harris asked how EPA went about getting chemical substances re-evaluated and reclassified, reiterating her concerns about aluminum dross, which had not been classified as a hazardous waste despite its deleterious effects in Tennessee.

Vice-Chair Heaps noted that a San Diego State University toxicity test found that one cigarette butt killed half the fish in one liter of water. She added that cigarette butts were the most commonly littered item across the country, and that studies had shown that cigarette use tended to be more common in areas associated with food deserts and urban communities of color. She asked OLEM to take a look at this issue.

Beverly Wright recalled how eight years previously EPA's goal had been finding ways to institutionalize rules, regulations, and processes that would remain when the current administration left office. She asked Mr. Stanislaus where he saw the greatest impact.

Vice-Chair Heaps invited Mr. Stanislaus to respond to any of the above comments. **Mr. Stanislaus** said that federal facilities should be subject to chemical plant safety rules. He pointed out there was a difference between preparedness for an accident and chemical facility cleanup. His office had strived to provide more transparency. He promised to report back to NEJAC on whether or not something was a hazardous waste, and to explore the issue of cigarette butt litter. He said he was very proud of the Definition of Solid Waste Rule and the Coal Ash Rule; he also mentioned doing several things with respect to chemical plant safety, and looking at a number of hazardous waste materials. He said he had tried to build a culture of looking at communities every step of the way. OLEM had recently issued a memo on traditional ecological knowledge.

Chair Moore reminded NEJAC members that Mr. Stanislaus and his team at OLEM had sat in on listening sessions around the country, taking notes and asking good questions. NEJAC looked forward to continuing its work with OLEM. Chair Moore announced NEJAC would take a 15-minute break before the next panel.

1.8 Dialogue with Federal Interagency Working Group on Environmental Justice

Vice-Chair Torres introduced the members of the panel: Mustafa Ali from EPA's Office of the Administrator, Chris Trent from HUD, Suzi Ruhl from OEJ, Christine Ash from Region 2, Cynthia Peurifoy from Region 4, Kim Lambert from the U.S. Fish and Wildlife Service, and Daria Neal from the U.S. Department of Justice (DOJ).

1.8.1 Mustafa Ali, U.S. Environmental Protection Agency, Senior Advisor for Environmental Justice, Office of the Administrator

The working group arose from Executive Order 12898, which in turn came out of a set of recommendations from stakeholders. It is one of the tools that allow EPA and other agencies to holistically address environmental justice issues and help communities to be equitable, sustainable, and healthy. In recent years EPA has been building stronger structures inside the interagency working group by including chiefs of staff, deputy administrators, principals themselves, and staff members. Mr. Ali introduced Marsha Minter, the driving force behind the interagency working group.

For the first time the working group had a framework, the first step in its 2016-2018 strategic plan, to ensure a bridge between administrations. The group has a number of new subcommittees, some of whom would address NEJAC shortly. There is also a regional interagency working group. There is some sentiment that the group should be more closely aligned with NEJAC and other advisory councils. Ms. Minter asked representatives of various agencies to introduce themselves. Mr. Ali insisted that the working group belonged to all its member agencies, not just EPA. He asked presenters to limit their remarks to five minutes instead of seven to save time for questions.

1.8.2 Chris Trent, U.S. Department of Housing and Urban Development (HUD)

Ms. Trent heads up the working group's Climate Change Subcommittee, which she characterizes as a strong interagency team. Her co-chair is EPA's Valerie Zartarian, but there are a number of agencies represented besides HUD and EPA. The team is currently recruiting new members; Ms. Trent welcomed suggestions from NEJAC.

The subcommittee was created in 2015, and is moving forward on a wide variety of initiatives. Its primary goal is to support collaboration across agencies and communities around environmental justice and climate change. It is doing everything it can to make communities more resilient. It is implementing the Educate, Motivate & Innovate climate justice project; a workshop has been planned and another is planned for 2017.

Ms. Trent showed NEJAC an article from the Washington Post on Hurricane Matthew which discusses social and environmental justice issues in Wilmington, North Carolina. She considered this a giant step in the right direction.

The subcommittee has looked at its charge and what it needs to do to meet its goals. It has asked each of its members to identify priorities. It has studied the National Institute of Environmental Health Sciences (NIEHS) climate justice conference to determine what steps it wants to take. It has decided on three topic areas it would like to address: training and capacity building, youth engagement, and climate resiliency planning.

The Educate, Motivate, Innovate project seeks to develop a conceptual holistic systems-based climate justice framework that agencies can use to make sure they are looking at things in a similar manner and approaching their own mission plans with these types of things involved. The subcommittee hopes to have something published in 2018 before it gets put out for public use. The subcommittee is compiling a list of communities to find out who is doing great things on climate change, what can be learned, and how to help other communities that might not be doing as well. Ms. Trent mentioned working with the National Oceanic and Atmospheric Administration (NOAA), which boasts the U.S. Climate Resilience Toolkit.

The subcommittee is looking at the next generation of leaders and minority-serving institutions, and attempting to develop a learning experience that is a two-way exchange and will ignite interest early on.

The subcommittee's goals include: looking at the intersection of environmental justice and climate change; engaging communities that may have been left out of earlier conversations; and identifying needs and gaps.

Ms. Trent cited some of the resources the subcommittee was using: EPA's Making a Visible Difference, USDA's Climate Hubs, the Rockefeller Foundation's Resilient Cities, the National Resource Network, and EPA's EJSCREEN. HUD and the Rockefeller Foundation partnered to host the National Disaster Resilience Competition, which gave out $1 billion in rewards. Communities that received money were required to have experienced a disaster in the past two years; the money was intended to help them establish systems and programs on the front end so there's less on the back end.

Mr. Ali added that the working group includes 17 federal agencies and two White House offices. Before the current administration, the working group had small handful of dedicated staffers who kept it going. Now it has hundreds of participants, thanks in large part to the National Environmental Policy Act (NEPA) Subcommittee.

1.8.3 Suzi Ruhl, U.S. Environmental Protection Agency, Office of Environmental Justice (OEJ)

Ms. Ruhl heads the NEPA Subcommittee. She reiterated Chair Moore's comment that one of the cornerstones of environmental justice is the ability to speak for oneself. The subcommittee has given the working group a seat at the table for federal projects that impact the environment. NEPA, at its core, is designed to promote good decision making.

There is a longstanding connection between NEPA and environmental justice. NEPA was written 40 years before the executive order establishing the working group, but it has similar goals. When President Clinton signed the executive order in 1994, the order was accompanied by a memorandum that specifically highlighted NEPA as an important tool for advancing environmental justice.

The subcommittee includes ten cabinet-level departments, three independent agencies, and one White House office, as well as three of the four largest producers of environmental impact statements. It wants the environmental justice community to be part of the decision-making process.

The NEPA Subcommittee has been working over four years. It now has well over 100 participants, including many of the strongest advocates for environmental justice in the federal government. It has compiled a report of best practices, which attempts to take what has worked since the signing of the executive order, and analyze how to more effectively, efficiently, and consistently make sure that environmental justice impacts are considered. Ms. Ruhl said there was a widespread commitment to include minorities, tribes, and low income communities.

The subcommittee's report identifies several key elements for considering environmental justice through NEPA: meaningful engagement, identifying pockets of minority and low income populations, addressing cumulative impacts, and getting money into environmental justice communities.

Ms. Ruhl said the subcommittee's work is only beginning. The next step is making sure environmental justice communities understand that they have a seat at the table, and providing them with the necessary training, outreach, and education.

1.8.4 Christine Ash, U.S. Environmental Protection Agency, Region 2

Mr. Ali told the Council there were also regional interagency working groups on environmental justice. Ms. Ash discussed the activities of the interagency working group in Region 2, which includes New York, New Jersey, Puerto Rico, and the U.S. Virgin Islands. Region 2's working group is run in conjunction with the Department of Health and Human Services (HHS). The group's kickoff meeting was held in October 2014.

Currently the regional interagency working group (RIWG) has over ten federal partners, and hopes to engage others. It has identified six of the region's most overburdened communities to focus its efforts on, one from each of the states and territories, one from a federally recognized tribe, and one from a tribe that the federal government has not recognized. The RIWG has formed smaller working groups for each community. Some agencies participate in all six communities; others participate in one or two. An online portal has been set up so the groups can share information.

The group's work has slowed down recently because of outbreaks of Zika virus in Puerto Rico and the U.S. Virgin Islands. Ms. Ash hopes to get back up to speed shortly. The work groups are hoping to visit their respective communities and meet with representatives. Interaction between various federal agencies has led to networking and increased collaboration.

1.8.5 Kim Lambert, U.S. Fish and Wildlife Service (FWS)

Ms. Lambert cited the creation of the Valle de Oro National Wildlife Refuge in Albuquerque's Mountain View Neighborhood as a national demonstration project. The neighborhood is home to many chemical storage and sewage facilities, and a Superfund site. The RIWG held five listening sessions in New Mexico in 2004, after which it published a report. One of the report's recommendations was to contact FWS. The community took the lead and insisted that a national wildlife refuge be established before another chemical storage facility was created. Local groups raised $104 million to build the refuge; EPA contributed $30,000. Valle de Oro is the first national wildlife refuge established in an urban area. The refuge includes a community garden, which provides educational opportunities for youth. Ms. Lambert reminded the Council there were over 360 federal agencies, and encouraged EPA to know who to work with, and how to work with them.

1.8.6 Cynthia Peurifoy, U.S. Environmental Protection Agency, Region 4

Ms. Peurifoy reminded NEJAC that the ReGenesis Project started as an interagency working group demonstration project in 2000. Federal agencies provided considerable technical assistance for ReGenesis. At the start of the Obama administration, EPA was able to participate in a series of listening sessions in the Atlanta area led by DOJ. Around that time the interagency working group MOU was amended to include more federal agencies, and require more from them. Many agencies participated in an environmental justice conference.

Region 4's RIWG identified several communities to focus on, including North Birmingham, Alabama, where many different agencies came together. The North Birmingham community crafted a plan of its own. Representatives from North Birmingham traveled to Spartanburg, South Carolina, to study the successes of that community when it faced similar issues. Six working groups were created that focused on North Birmingham. The EPA regional administrator is well aware of North Birmingham's concerns. The community has obtained nonprofit status.

A new project is set to begin in North Carolina in response to a request from former NEJAC member Omega Wilson. The planning process will commence in the spring. There is a plan in Spartanburg to build a solar facility on an old landfill. Ms. Peurifoy said collaboration with other agencies is necessary because environmental justice communities need a lot more help than EPA can provide.

Mr. Ali added that businesses, industries, and foundations were also working to help environmental justice communities. Different agencies are instrumental in highlighting how success can happen.

1.8.7 Daria Neal, U.S. Department of Justice (DOJ)

Ms. Neal co-chairs the Title VI Subcommittee with Dylan DeKervor. Title VI of the Civil Rights Act of 1964 prohibits discrimination in programs and activities that receive federal financial assistance. The Title VI Subcommittee was formed because it was recognized there was a need to identify opportunities to address environmental justice concerns through enforcement of Title VI.

The subcommittee has recognized the need to do a better job sharing information within the federal family and with the public. To that end, it has established its own webpage with resources from various agencies and links to each agency's civil rights office.

In March 2016 the subcommittee coordinated a three-hour workshop at the National Environmental Justice Conference. The workshop was open to the public and included an overview of Title VI, a panel focusing on case-specific matters, and an opportunity for agencies to report on their plans for Title VI. In April the subcommittee hosted environmental justice advocates at the interagency working group meeting. A key issue the advocates raised was the need to improve coordination among federal agencies.

Accomplishments over the past year include the resolution of a Title VI complaint involving the Corpus Christi Harbor Bridge project in Texas; guidance to state and local governments and other federally assisted recipients engaged in emergency preparedness, response, mitigation, and recovery activities; and a DOJ brief in a matter involving discrimination against residents of Georgia's Sapelo Island. Ms. Neal felt ongoing communication with federal partners was crucial, particularly in the civil rights offices. The Title VI Subcommittee was dedicated to engaging all federal civil rights offices on environmental justice.

Mr. Ali added that (1) the interagency working group is the official vehicle for working with vulnerable communities; (2) the 17 federal agencies have a responsibility for environmental justice; and (3) they are also responsible for creating and following environmental justice strategies.

Chair Moore noted a meeting between the White House Council on Environmental Quality (CEQ) and environmental justice leaders in the wake of the executive order. During the meeting the leaders proposed that environmental justice language be included in NEPA. Chair Moore stressed the importance of connecting impacted communities to federal agencies on the NEPA Subcommittee, and asked about the potential role of NEJAC in helping communities use NEPA.

Vice-Chair Heaps reminded members that the Council was procedurally required to start the public comment period at 6:00 p.m. She noted that nine members had indicated they wished to ask questions of the panel. Each member would have two minutes to make his/her remarks. Panelists probably would not have time to respond at the meeting, but were welcome to submit written responses afterwards. Vice-Chair Heaps observed that some NEJAC members had spoken more than others.

Sylvia Orduno observed that there were many undocumented residents not receiving necessary information in the event of a disaster and asked what was being done to rectify the situation. She

mentioned the Title VI Subcommittee's efforts to coordinate with civil rights offices and asked what it was doing with respect to undocumented individuals. Member Orduno commented on the working group's governance structures, and asked whether the surgeon general had been involved.

Cheryl Johnson asked how the interagency working group incorporated residents of public housing. She commented on violence in urban communities, and asked whether the working group addressed mental illness. She expressed concern over how the working group incorporated disoriented and/or disconnected youth and reentry folks into its programs. She asked how DOJ addressed communities not complying with Executive Order 12898.

Hermila Trevino-Sauceda asked what the working group was doing in terms of worker protection standards to protect farmworkers. She then asked whether the working group could support the idea of each state having an interagency working group of its own.

Kerry Doi asked whether the interagency working group and each RIWG had timetables for outcomes and deliverables, and whether it took a lot of arm-twisting to install the solar plant on the former landfill site.

Paul Shoemaker called for CDC to have a role in the working group, recalling a cooperative agreement between EPA and CDC to work on environmental illnesses. He suggested FWS have a dedicated environmental justice person to highlight its success in building a wildlife refuge in Albuquerque and propose similar ideas elsewhere.

Rita Harris recalled past enforcement problems with Title VI, and asked if the process was different now.

Mildred McClain proposed involving the ATSDR in the working group. She noted that the Climate Change Subcommittee had created several hubs, but that none of them were located in the southeast. She asked the subcommittee to pay more attention to coastal and rural communities. She mentioned the guidance Ms. Neal had cited and asked what was being done to ensure it was followed. She added that some states viewed the concept of environmental justice unfavorably.

Beverly Wright asked what the process was for introducing projects to the interagency working group.

Sacoby Wilson stressed the importance of meaningful, deep, and authentic engagement with environmental justice communities, and making sure they were able to deal with disaster and handle the long-term recovery. He asked about the metrics of designation, impact, evaluation, and accountability. He further emphasized the need for meaningful community involvement in the scoping process. He seconded the calls of other members to include CDC and ATSDR in the working group.

Vice-Chair Heaps asked which of the 17 partners had senior advisors for environmental justice, and when those that did not planned to add one. She expressed interest in what the CEQ and the White House Domestic Policy Council were doing.

Mr. Tejada reminded people listening on the phone that the second day of the meeting would start at 9:00 a.m. He informed the Council that it would take a short break, and commence the public comment period at 6:00 p.m. NEJAC members could obtain dinner and eat it during the public comment period.

Mr. Ali said that the first Revitalizing Vulnerable Communities Summit would take place October 25-26 in Crystal City.

1.9 Public Comment Period

On October 12, 2016, the NEJAC held a public comment period to allow members of the public to discuss environmental justice concerns in their communities. A total of 11 individuals submitted verbal public comments to the NEJAC. An additional 22 individuals had signed up to speak but were not in attendance. Each speaker was allotted seven minutes.

1.9.1 Eugene Keahey, Project DreamHaus: Sandbranch, TX

Pastor Keahey clarified his earlier remarks by stating the recent accomplishments in Sandbranch were a collaborative effort for which no one individual deserved the credit. EPA Region 6 was responsible for gathering FEMA, USDA, and others together to address the issues facing Sandbranch, something that had never been done before. In the 30 years Sandbranch was without water, FEMA never once visited the community. To state the problem was one thing; to have an honest, meaningful dialogue was something else.

1.9.2 Hermila Trevino-Sauceda, Alianza Nacional de Campesinas

Member Trevino-Sauceda read a letter on behalf of Alianza Nacional de Campesinas asking NEJAC to assist in protecting environmental justice communities, farmworkers, and their families from exposure to toxic pesticides by supporting a robust implementation and enforcement of the 2015 Revised Agricultural Worker Protection Standards (WPS). The letter encouraged EPA to continue to oppose attempts by Congress to weaken standards. The most important provisions of the WPS included required annual training of farmworkers on a broader range of pesticide hazards, including their right to file pesticide safety complaints. Alianza Nacional de Campesinas recommended to EPA that all materials and programs be developed using best practices for public and occupational health education, resources be committed to actively involve farmworkers in the development and testing of training materials, regional meetings be convened to solicit input directly from farmworkers, farmworker-based organizations be contracted to conduct focus groups of farmworkers to review and revise materials under development, and that the issue of workers' rights under the WPS be a primary feature of any new outreach and training materials. A concerted effort by EPA was necessary to ensure that states were clear on the parameters of WPS and had a plan for adequate enforcement of its provisions. Alianza Nacional de Campesinas urged NEJAC to recommend that the next administration take the necessary steps to ensure that states fully implement and effectively enforce WPS and Application Exclusion Zone (AEZ) requirements in order to protect farmworkers, their families, and rural communities from exposure during pesticide applications. It asked that EPA ensure that state enforcement agencies have established procedures for receiving and investigating WPS complaints, and that such procedures be clearly communicated to farmworkers and their service providers.

Arsenio Mataka asked what specifically the letter was asking for with respect to sensitive populations within AEZs. **Member Trevino-Sauceda** said she was talking about people living in neighborhoods that were right next to the fields. Oftentimes those people did not even receive notice that there would be an application. **Member Mataka** felt the request of Alianza Nacional de Campesinas was timely, adding that California was considering a proposed regulation that would create a quarter-mile buffer around schools and day care centers. **Member Trevino-Sauceda** expressed concern over how EPA would conduct monitoring, and through which agencies.

Ellen Drew recommended NEJAC support what Alianza Nacional de Campesinas and its partner organizations were asking for in the letter. **Vice-Chair Torres** said her recommendation would be noted. **Arsenio Mataka** asked about the protocol for submitting a recommendation to EPA. **Chair Moore** said

the person testifying would make a recommendation; the Council would take up that recommendation the following day during its public business meeting. **Vice-Chair Heaps** said she would note them and circulate them to the Council for review.

1.9.3 Ofelia Aguilar, Farmworker Association of Florida

Ms. Aguilar, a native of Mexico, testified before the Council in Spanish; **Member Trevino-Sauceda** acted as her interpreter. **Arsenio Mataka** noted that the Council had not hired a professional interpreter for the meeting. **Chair Moore** assured him that it was the policy of the Council to provide an interpreter when it is advised one was needed. **Mr. Tejada** added that NEJAC staff made a practice of asking each speaker if s/he required an interpreter when s/he signed up.

Ms. Aguilar had been working in a nursery in Homestead, Florida for the past 12 years. For two months in 2013 she was exposed to toxic chemicals in the workplace because her employers failed to provide adequate and correct information. She related how the company had new employees sign a document that did not inform them of their rights. She later attended a training sponsored by the Farmworker Association of Florida in which she learned that workers needed to be a minimum distance from chemicals when they were applied. She reported this to her crew leader, who told her there was nothing he could do if she was the only one complaining. When she asked for water, she was told there was no time. After struggling to get home, she shared what had happened with the Farmworker Association of Florida, who asked her to come in and file a complaint. Even though she had trouble eating for two weeks, she felt she could not afford to stay home from work. Her supervisor said she would be transferred to another work site because she was causing problems. When she asked for a report of what had happened, she was told she would not receive one, and that she was feeling bad because she was older than the other workers. She was afraid she would lose her job. After filing her complaint, her co-workers bullied her; the supervisors encouraged this behavior. The complaint was resolved in her favor and the company was forced to pay a fine. An attorney advised her that she could file a personal complaint. She was not interested in money; she only wanted to make sure that no one else went through the same thing. She asked that farmworkers be included in the development of informational materials.

Mike Ellerbrock asked if the documents the company had workers sign were in Spanish. **Ms. Aguilar** said they were in both Spanish and English but that workers were not given time to read them.

Arsenio Mataka said he was glad NEJAC allowed extra time for Member Trevino-Sauceda to interpret Ms. Aguilar's remarks. He mentioned a case in California in which it was ruled that the Title VI rights of speakers requiring an interpreter were violated because they were effectively accorded less time to speak than native English speakers. He spoke in support of including farmworkers in an RIWG in EPA Region 9.

1.9.4 Kendyl Crawford, Virginia Sierra Club

Ms. Crawford acknowledged that the Sierra Club is not an environmental justice organization, but insisted it is learning how to be a better environmental justice ally. The Virginia Sierra Club is part of a loose collaboration of organizations working in the state to advocate for more resources for environmental justice communities. It sent a letter to EPA Region 3 Administrator Shawn Garvin requesting the creation of an environmental justice leadership academy in the region, noting the success of a similar academy in Region 4. As of October 12, 26 organizations representing tens of thousands of supporters had signed on supporting the idea. Having observed the NEJAC meeting, Ms. Crawford believes there is considerable potential for peer-to-peer learning, but pointed out that it is hard for communities to play the game if they do not know the rules. She felt that a leadership academy would help to foster community power. She asked NEJAC to make a national recommendation that all EPA regions have such an academy.

Vice-Chair Heaps noted that NEJAC members from Region 3 had planned to have dinner with Mr. Garvin, but had been unable to do so because of time constraints. She said Mr. Garvin was aware of the Virginia Sierra Club's request and had been discussing lessons learned with Region 4.

Erica Holloman commended the Virginia Sierra Club for standing in solidarity with environmental justice organizations, which had brought resources and built capacity in the state. She was glad the Sierra Club was not attempting to speak for environmental justice communities as green organizations had often done in the past. **Vice-Chair Heaps** asked Ms. Crawford to hold her response until all NEJAC members who wanted to speak had an opportunity to do so.

Sacoby Wilson said that there are a lot of groups in Maryland that dabbled in environmental justice, and that actual environmental justice organizations are tired of such groups acting like experts on the issue. He felt the leadership academy would give environmental justice communities the ability to speak for themselves. He stressed the importance of directing federal funds properly.

Chair Moore commented that the Wilmington chapter of the Sierra Club has been working closely with environmental justice groups. He encouraged NEJAC members to study the Jemez Principles for Democratic Organizing. He recalled receiving testimony about the Region 4 leadership academy at a NEJAC meeting in Mississippi. He cited several concerns around starting a leadership academy: funding attendees' tuition, the curriculum, and the potential for joint training.

Rita Harris said she had worked for Sierra Club for 17 years, and she had been hired to do environmental justice work. She said Sierra Club patterned its environmental justice program after the people of color principles. It encouraged communities to speak for themselves. Ms. Harris said Sierra Club was a nationwide organization with a huge network of volunteers. She acknowledged the organization has made missteps over the years, but she will not apologize for its activities. She spoke in support of funding grassroots groups and creating leadership academies. She said community members need a lot of help in knowing where to go for information on various issues. In the Memphis area, Sierra Club provides free informational conferences to the community. She agreed that a collaborative approach is preferable.

Beverly Wright commented that her relationship with Sierra Club over the past 30 years had been bad, but was getting better. She did, however, have good relations with Darryl Malek-Wiley, Sierra Club's environmental justice associate in New Orleans. She acknowledged that relations between environmental justice groups and big green organizations have been ugly at times, but have gotten better. She stressed the importance of training young people, particularly people of color, in environmental justice, but noted that it was often difficult to obtain funding. She warned that in the past when such training did exist, it was heavy on the environment and light on justice. She mentioned the work she and Dr. Robert Bullard had done on environmental justice training despite insufficient funds. Their efforts led to the first HBCU climate change conference. They led a group of students to the 2015 United Nations Climate Change Conference (COP 21) in Paris. Member Wright called for investment in environmental justice training at HBCUs.

Mildred McClain praised the efforts of Member Wright and Dr. Bullard with HBCUs. She added that there were a number of student-aged young people who would be in college if they had the money, but were nevertheless doing great work in their communities. She suggested finding a way to partner with those people. She supported the idea of an environmental justice leadership academy in principle, but stressed the need to examine the curriculum.

Erica Holloman pointed out that she, Ms. Crawford, and Member Wilson were graduates of HBCUs, and stressed the importance of environmental justice training at such institutions.

Vice-Chair Heaps invited Ms. Crawford to discuss Virginia Sierra Club's work with the Southeast CARE Coalition. **Ms. Crawford** said the two organizations had been working together for almost two years. After a period of getting to know each other, they reached an MOU. The missions of the two groups overlap significantly, particularly around toxic air pollution in and around the city of Newport News. Together they have planned campaigns, organized, built a network of volunteers, and identified leaders. In 2015 they collected 1,000 signatures for a petition for a community air monitor to the state director of natural resources.

1.9.5 Mark McPherson on behalf of Carol Francois, Sandbranch…Everybody's Community!

Mr. McPherson, an attorney from Dallas, Texas representing the Sandbranch Development and Water Supply Corporation and the Mount Zion Baptist Church, read a letter from Dr. Francois. Dr. Francois wrote of Sandbranch's 30-year struggle to overcome the neglect and disdain of elected officials. The community decided to take matters into its own hands because its calls for safe drinking water had been repeatedly ignored. It developed collaborative partnerships with multiple levels of government and a variety of nonprofits, foundations, faith-based groups, and community partners in order to achieve environmental justice. It achieved remarkable results in just nine months which placed it on the cusp of developing its own water and wastewater system and a systemic, sustainable community revitalization and resilience effort. Dr. Francois hailed the strong, positive leadership of EPA Region 6 in assisting Sandbranch. She insisted that the problem of poverty could not be solved without safe water and sanitary services and that the traditional cost-benefit analysis as a means to support the provision of basic services by local and state governments did not work for impoverished areas suffering from environmental injustice. She believed that future environmental justice efforts should include bringing all resources to bear to eliminate cost-benefit analysis as a means to avoid ensuring environmental justice for all. She encouraged all representative agencies to pursue authorization to commit monies directly to properly qualified situations. She felt it was important to share Sandbranch's story because power was gained by sharing knowledge, not hoarding it. She asked NEJAC to consider recommending that EPA develop infrastructure that would allow communities at various stages of environmental justice struggles to network together for the purpose of sharing their experiences and serving as a support system to one another.

Kerry Doi asked if Mr. McPherson was Sandbranch's attorney. **Mr. McPherson** reiterated that he represented the Sandbranch Development and Water Supply Corporation and the Mount Zion Baptist Church, but he did not represent the community as a whole. **Member Doi** said he asked his question for the purpose of determining whether Sandbranch had a legitimate Title VI complaint against Dallas County. **Mr. McPherson** said it may well, but the community leaders decided early on not to take the approach of litigation for fear that it would take too long.

Sacoby Wilson added that a lawsuit was just one of many tools in Sandbranch's toolbox. He pointed to an unincorporated community he worked with in North Carolina that had limited access to basic amenities which chose not to file a lawsuit but sought injunctive relief, which brought the other side to the table. He stressed the need to make funding available to build up state environmental justice networks, which have fallen into disrepair.

Chair Moore commended the community of Sandbranch for taking the necessary steps to ensure its own safe water and sanitary system. He encouraged NEJAC members to consider the model being employed in Sandbranch.

Deidre Sanders asked about the absence of the Texas Commission on Environmental Quality (TCEQ) prior to Sandbranch engaging them. **Mr. McPherson** said he saw what happened to Sandbranch more as a matter of neglect than something deliberate, like the Flint crisis. He added that Sandbranch was so small that it was easily overlooked. Like many impoverished communities, it lacked the voice to get the attention of people when it needed to. TCEQ may have been absent from the table before, but it is there currently. EPA had been helpful in influencing federal, state, and local agencies to take an active role. Mr. McPherson added that he would be submitting a written comment calling for strengthened environmental justice enforcement.

Michael Ellerbrock suggested what Sandbranch needed was a media story with a movie star or a member of the Dallas Cowboys which could shame the power establishment in Dallas into doing the right thing. **Mr. McPherson** replied that Sandbranch had received incredible media coverage from every local news channel and from foreign outlets like the British Broadcasting Corporation (BBC).

Deidre Sanders reported being struck by Pastor Keahey's slide of Ms. Parker pumping water; at first she had thought it was somewhere in Africa. **Mr. McPherson** said when Engineers Without Borders arrived in Sandbranch, its representatives said they had seen better conditions in third world countries.

1.9.6 Kamita Gray, Brandywine, TB Southern Region Neighborhood Coalition

Ms. Gray said Brandywine is the poster child of cumulative environmental impact. Within a 2.9 mile radius of the community, there were 10,000 diesel truck trips per day, one regional fly and coal ash dump, and two contaminated soil burning pipes, one of which was behind an open outdoor mall. There were seven aggregate mining operations with two wash plants, a sludge lagoon, and three approved fossil fuel power plants. The community filed a Title VI complaint which EPA was investigating. Ms. Gray stressed the need to include everyone in the participatory process of revitalizing the community, and to have a long-term collaborative sustainable commitment for a better quality of life. She felt insulted by the notion that community members were not capable of leadership roles. When asked to sign the Sierra Club's letter, her organization refused. Ms. Gray commented that the Sierra Club of Prince George's County did not consider environmental justice a viable issue. She asked NEJAC to make sure that communities and grassroots organizations were seen as viable leaders who had a voice and were able to speak for themselves.

Mildred McClain praised Ms. Gray for her statement, saying that the environmental justice movement was built on the principle of communities speaking for themselves. She pointed to predominantly African-American communities in Georgia and South Carolina educating themselves over the dangers of a nearby nuclear power plant.

Sacoby Wilson asked Ms. Gray to comment on her concerns surrounding air pollutants from the energy generation facilities, possible solutions, and benefits her organization is seeking from its complaint. **Ms. Gray** said her group is most concerned about air quality, commenting that the third fossil fuel plant was allowed to emit five times more ammonia within the area, and that the plants are in close proximity to a senior citizens' community. She said her organization would like to have air quality monitors, mitigation of diesel fuel emissions, and improvement of roads.

Deidre Sanders said she was the environmental justice lead for the American Association of Blacks in Energy, which was holding its annual convention in Washington, D.C. in 2017 and would be interested in learning about the events in Brandywine.

Dennis Randolph stressed the need for transportation and air quality agencies to come together on issues surrounding emissions. **Ms. Gray** felt it should be part of the permitting process. She promised to submit written testimony the following day.

1.9.7 Yudith Nieto, Texas Environmental Justice Advocacy Services (TEJAS)

Ms. Nieto commended EPA for putting together the Youth Perspectives on Climate Change Workgroup. She and Samantha Shattuck would present to NEJAC the following day on the working group's progress. The climate change environmental justice movement includes students, community organizers, climate justice activists, and EPA employees. The working group is building on the successes of past environmental justice leaders. Ms. Nieto spoke of the need for more funding to continue climate change studies and the need to continue including more people of color in climate change discussions. She noted that many EPA internships available to young people are not paid, which prevents many individuals from continuing to work for the agency.

Charles Chase mentioned his involvement with a program dedicated to stopping unpaid internships. He asked Ms. Nieto how NEJAC could involve more youth in its work. **Ms. Nieto** said she had worked with various coalitions and had gone through a series of trainings and mentorships. She felt EPA and NEJAC should be more closely involved with local communities, organizations, and institutions to engage more young people. She proposed NEJAC meetings include youth workshops.

Mike Ellerbrock noted there was a Latino community in Houston located among refineries and power plants. **Ms. Nieto** said it was called Manchester.

Rita Harris described Ms. Nieto as an up-and-coming environmental justice leader, noting she had testified before EPA on the ELG Toxic Water Rule.

1.9.8 Steven Taylor, Campaign for Healthier Solutions, Coming Clean

Mr. Taylor reminded NEJAC that October was National Children's Health Month. He said the Campaign for Healthier Solutions is a national environmental justice campaign led by and accountable to environmental justice communities and constituencies. Its mission is to work with discount retail chains, or dollar stores, to help them protect their customers and employees and better serve the communities in which they operate by adopting policies and practices to remove harmful chemicals from the products they sell, and begin to stock safer local and regionally-produced products and healthier foods. Campaign coordinator Jose Bravo had previously presented to NEJAC at its May 2015 meeting in San Diego, where he urged EPA and other federal agencies to engage in this issue. Mr. Taylor noted that the three largest dollar store chains in the U.S. collectively operate over 22,000 stores, more than Walmart. Those stores are often located in environmental justice communities, and are often the only source of household products and food for many miles. As such, they are well positioned to be transformed from sources contributing to ill health to sources of health and wellbeing. Mr. Taylor said he had made a similar point testifying before NEJAC at its fall 2015 meeting. This was the third time his group had been before the Council, and it was hoping the third time was the charm. It was renewing its request that NEJAC recommend to EPA that the agency work with other federal agencies and entities to identify and implement meaningful actions to increase the access of dollar store customers and employees to information about hazardous and untested chemicals in the products sold in those stores; increase monitoring and enforcement of federal laws and regulations governing chemicals and products sold in dollar stores, including food packaging; reduce exposure of children and adults to hazardous and untested chemicals by encouraging dollar stores to adopt and implement corporate policies to restrict chemicals of concern in products they sold; and

improve food security, reduce diabetes, obesity, and other health problems by encouraging dollar stores to stock safer products and source and stock healthier foods.

Vice-Chair Heaps asked if Mr. Taylor had submitted his requests in writing. **Mr. Taylor** said he had not been able to submit them prior to October 5, but he would be willing to submit them in whatever manner was helpful to the Council.

Paul Shoemaker commended Mr. Taylor and his group for their work with discount retailers, but expressed that they might not be going far enough up the food chain, pointing out that producers of products occasionally lied. He asked Mr. Taylor if his group had any plans for engaging manufacturers.

Vice-Chair Torres said he would let each NEJAC member speak who wanted to, after which Mr. Taylor could answer questions.

Beverly Wright noted the growth of dollar stores and low income housing in her previously middle class New Orleans neighborhood after Hurricane Katrina. She commented that dollar store products were inexpensive because they were inferior, and questioned whether such stores could remain inexpensive if they were subject to more stringent regulations. However, if such regulations forced dollar stores out of business, she did not believe it would be such an undesirable outcome.

Sacoby Wilson asked if Mr. Taylor's group has conducted studies of the areas around dollar stores. He pointed out that dollar stores are often indicators of economic distress. He asked whether the group have established best practices or models around the issue that could help NEJAC frame its recommendation.

Arsenio Mataka remembered Jose Bravo's testimony at the NEJAC meeting in San Diego, and noted that it inspired California to form an environmental justice task force on multimedia enforcement. The task force recently released a report which found that environmental justice communities are particularly interested in whether discount stores were meeting various requirements. Member Mataka said he wanted to see more enforcement of regulations nationwide.

Sylvia Orduno commented that many low income communities regarded dollar stores as the best thing since sliced bread, adding that some people cannot even afford to shop at Walmart. She said they provided people with options, and helped low income communities sustain themselves.

Erica Holloman pointed out that products in discount stores often had the same name as their counterparts in more expensive stores. She asked who was responsible for monitoring these products.

Hermila Trevino-Sauceda mentioned a project in California dedicated to examining discount stores in an effort to make sure people with low incomes are not being poisoned. She stressed the need for affordable products, but added that affordable should not mean toxic.

Rita Harris commented that a lot of the goods sold in dollar stores are made in China, which do not have the same environmental regulations as the U.S. She noted that some pieces of jewelry have warnings that they were not for children, and recalled a documentary that interpreted such warnings as saying the products contained a certain level of lead. She added that jewelry made in China often contains reused radioactive materials. She spoke in support of more stringent standards for dollar stores, arguing that any slightly higher cost would be worth not getting poisoned.

Chair Moore observed that dollar stores could be considered cumulative impact in many communities, and added that countries like China would not make certain products if people did not buy them. He

encouraged Mr. Taylor to respond to NEJAC members' questions. **Mr. Taylor** referred members to the campaign's website, nontoxicdollarstores.org, which documented its product testing. He acknowledged that consumers in the U.S. have little or no ability to engage directly with manufacturers, but that retailers had some success reaching up the supply chain. His group is in the process of mapping the areas around dollar stores in nine metropolitan areas. Mr. Taylor added that his group is hoping NEJAC recommends to EPA that it examine who is in charge of regulating and monitoring various matters. He insisted that his campaign is not about shutting down dollar stores, but rather to ensure that people are not forced to make the unfair choice between something they could not afford and something that is toxic. He noted that different dollar stores have different economic models, and pointed out that Dollar Tree has taken steps to ensure consumer safety. **Chair Moore** reported to the Council that a meeting was held in Washington in September with representatives from various agencies.

1.9.9 Ronald White, Union of Concerned Scientists (UCS)

Mr. White shared with NEJAC the results of a study that will soon be released investigating the health and safety risks associated with chronic hazardous air pollution and exposures, as well as potential acute toxic chemical releases from close proximity to high risk chemical facilities in four Houston communities, two predominantly Latino ones with lower incomes, and two more affluent, predominantly white with ones. The two lower income communities were within a three-mile radius of 16 and 28 facilities on the EPA Risk Management Plan (RMP), compared with one and seven RMP facilities for the two higher income communities. The study found that the toxicity-weighted concentration of overall air pollution exposures in one of the low income communities were 12 and three times higher than the two higher income communities. Exposures in the other low income community were 17 and almost five times higher than its more affluent counterparts. While the study found some chemicals were present in all four communities, it found substantially higher levels for many of them in the ones with lower incomes. The study also showed increased risks for adverse health impacts in the low income areas. It concluded that the low income communities were experiencing double jeopardy from disproportionately high levels of toxic air pollution exposures and health risks combined with their close proximity to a larger number of facilities posing a substantial risk of a potentially catastrophic chemical release. Based on its findings, UCS presented NEJAC with the following recommendations: (1) require chemical facilities to use safer chemicals, technologies, and processes; (2) ensure facilities share information and their emergency response plans with fenceline communities; (3) require chemical facilities to continuously monitor and report their fenceline area emissions and health hazards; (4) prevent construction of new or expanded chemical facilities near homes and schools and conversely prevent the siting of new homes and schools near dangerous chemical plants; (5) require publicly accessible formal health impact assessments and mitigation plans to gauge the cumulative impact of hazardous chemical exposures on fenceline communities; and (6) strengthen the enforcement of existing environmental and workplace health and safety regulations.

Chair Moore commented that the plight of the low income communities in the UCS study is well known to EPA, and added that the Cambridge office of UCS has signed the Jemez Principles, and that UCS is working closely with TEJAS on the project. He said he looks forward to receiving the full report on the study.

Sacoby Wilson suggested involving the communities in the study in making measurements, citing low-cost tools like the ATMOS2 to measure levels of various chemicals.

Kerry Doi said he would like a copy of the study, and asked if it is available online. **Mr. White** said the report will be released on October 27, at which time it will be available online. It will include an interactive map.

1.9.10 Quentin Pair, private citizen

Mr. Pair requested NEJAC members read the U.S. Commission on Civil Rights report on Title VI, EPA, and environmental justice, draw their own conclusions, and respond to it. The report is largely critical of EPA's work with respect to Title VI. Mr. Pair thought that is unfortunate, claiming that EPA did not get enough credit for the good work it did on environmental justice. As a DOJ senior trial attorney, he represented EPA for nearly 35 years, and spent 15 years on the interagency working group. He asked members to look at the memorandum accompanying Executive Order 12898 which specifically cited the importance of Title VI to environmental justice work. After hundreds of cases referred to EPA for consideration and action, there has not been one formal finding of discrimination under Title VI. Mr. Pair attributed EPA's failure to act under Title VI to inadequate funding and staffing.

Rita Harris said she is concerned about Title VI. She pointed out that a representative from the Office of Civil Rights (OCR) will address NEJAC the following day. She asked who had jurisdiction over Title VI. **Mr. Pair** replied that there was a Civil Rights Division in DOJ and an Office of Civil Rights in EPA which handled Title VI within the agency. He added there was only so much EPA could do on this issue without NEJAC support of funding and staffing. **Member Harris** recalled former EPA Administrator Lisa Jackson had made a promise to review Title VI cases, which ultimately went unfulfilled. She felt that in order to have the credibility of the public, NEJAC should recommend that EPA provide some kind of closure on those cases so that people could see NEJAC was doing something. **Mr. Pair** mentioned an August letter from various grassroots communities recommending to the president (1) establishing the Office of Environmental Justice and Community Revitalization in the White House; (2) bringing Title VI to the forefront; and (3) withdrawing EPA funding from states with violations.

Deidre Sanders recalled NEJAC received a report from OCR in 2015, which assured the Council that a new process was in place for clearing Title VI cases. **Mr. Tejada** acknowledged the importance of the report Mr. Pair presented. He added that NEJAC would receive a presentation the following day from OCR's acting director, who had been in that position for six months. She had also been present for most of that day's proceedings. Mr. Tejada perceived more had happened in EPA with respect to civil rights in the past six months than at any other time since he arrived at the agency.

1.9.11 Sylvia Orduno, National Coalition on Human Rights to Water and Sanitation

Member Orduno said the coalition had submitted a written statement. The coalition consists of 125 different committee organizations, nonprofits, academics, scientists, and legal experts dedicated specifically to issues affecting communities regarding problems with access, affordability, clean water, and sanitation. It brought these issues to EPA's attention during an NGO meeting on June 2. It welcomed EPA's initiative to develop a national action plan on safe drinking water, but expressed concern over the lack of transparency, the exclusion of affected communities, and omission of several critical issues. It presented NEJAC with the following recommendations: (1) the plan should focus on enforcement; (2) the plan must include robust affordability standards; (3) affected communities must have sustained, meaningful input; and (4) the plan should cover source water protection. It asked EPA to conduct a nationwide tour of affected communities to gather input, share information, and develop a plan in a genuinely collaborative manner reflecting the needs and priorities of the country's most vulnerable communities.

Ellen Drew said she was present at the June 2 meeting. It was part of a series of three meetings, one with federal agencies, one with state agencies, and one with utilities. Each group was asked four questions; at the time, EPA did not know how the other two groups answered them. **Mr. Tejada** added that the meetings were part of the Office of Water's attempts to engage stakeholders quickly. At the end of the

meeting that was supposed to be on communities, he commented that the room was poorly equipped to have the necessary conversation. The Office of Water took his comments to heart, and conducted focused listening sessions with communities in their communities. Local environmental justice coordinators took the lead role in organizing those meetings. **Ms. Drew** echoed Mr. Tejada's comments about the first set of meetings; attendees were mostly from various foundations and nonprofits, not the affected communities.

Cynthia Kim Len Rezentes said there are parallel efforts ongoing. She reported receiving a call from her local water supply board in Hawaii asking for input on putting together a presentation to a group of visiting Senate staffers. She feared that Congress would go one way while NEJAC went another.

Chair Moore remarked that the Office of Water presentation was one of the first items on the following day's agenda, and stressed the need for a quorum. He added that as the agenda progressed, the Council was likely to start rushing as members left to catch flights, so it was important that everything start on time.

Mr. Ali stressed the need to keep each other informed on what's going on in different branches of the government, and encouraged members to offer suggestions on coming together to move agenda items forward. He spoke of a movement on Capitol Hill to create an environmental justice group, which NEJAC could possibly interface with. He felt it was important to find a way for people to exchange ideas without violating the processes in place.

Ellen Drew said she viewed the following day as an opportunity to share and to get some of the gray areas straightened out, and felt it would be a step in the right direction.

Lisa Finley-DeVille mentioned that she submitted two documents on events in North Dakota for public comment, one on brine spills associated with unconventional oil development, and one on gas flaring and venting. She noted that North Dakota only had 13 health inspectors to inspect 30,000 wells.

Paul Shoemaker guessed that the EPA Office of Water was well placed to find out what was going on with the Senate staffers' trip to Hawaii, and suggested that someone inform their representative that NEJAC would likely ask him about that the following day. **Chair Moore** promised to do that.

Chair Moore concluded the first day of the meeting. He acknowledged it had been a long day, but pointed out that past meetings have had as many as 110 public commenters, and had gone as late as 1:30 a.m.

2.1 Welcome and Day One Recap

On the second day, Thursday, October 13, 2016, **Matthew Tejada**, the NEJAC Designated Federal Officer, noted the presence of a quorum and turned the meeting over to Richard Moore, the NEJAC Chair, and Jill Witkowski Heaps and Javier Francisco Torres, the NEJAC Vice-Chairs.

Chair Moore observed that there is a tendency in panels where the first presenters finished within the time allotted, but subsequent speakers ran long. **Sylvia Orduno** agreed that all presenters should do their best to observe time limits.

Erica Holloman felt that instead of limiting public comments to a few hours in the evening, time should be set aside during the day. **Mr. Tejada** said that was something the Council could discuss, but reminded members that there were a lot of demands on NEJAC's time.

Sacoby Wilson called for multiple community voice panels, with sufficient time for questions and reflections by NEJAC members.

2.2 Dialogue with U.S. Environmental Protection Agency Leadership: OW

Joel Beauvais, Deputy Assistant Administrator for the Office of Water (OW), introduced the OW senior leaders in attendance. He highlighted the Effluent Limitation Guidelines for Steam Electric Power Plants, which will reduce toxic discharges to the nation's waterways by 1.4 billion pounds per year. Discharges are disproportionately located in communities with environmental justice concerns. The rule will also result in a reduction of 57 billion gallons per year of fresh water withdrawals. Along with the Coal Ash Rule, this will help to drive a transition away from coal ash impoundments.

Another OW accomplishment is the Clean Water Rule, which was completed in 2015. The rule focuses on clarifying the scope of jurisdiction and protection of the Clean Water Act. It has not been well understood in the public debate and has generated considerable conflict. Among other things, it clarifies protections for the nation's headwater streams, the source of drinking water for nearly a third of the country's population.

Recently OW has been focused on infrastructure. It has stepped up its community-based work, with initiatives like the Urban Waters Program, Green Infrastructure Program, and Making a Visible Difference in Communities. Tribal work has been another focus. OW has done two rulemakings to facilitate tribes' ability to receive authority of treatment in a manner similar to states. Recently it issued an advance notice of proposed rulemaking seeking public dialogue and engagement on possibly establishing federal baseline water quality standards for reservations where the tribe has not established standards of its own.

OW has been working on training information and data through support of a variety of tools that can help empower communities and citizens to be engaged on water quality issues. Safe drinking water has always been a key focus area for OW, but it has become even more of a priority in the past year with the events in Flint and elsewhere. OW is beginning a process of intensive engagement with stakeholders to look at the larger strategic questions as well as emerging crises. It is working towards developing a national action plan that it expects to issue before the end of the year.

The equity dimension of infrastructure is important. It is not enough to spend money and build capacity; OW must focus on prioritizing the communities that need it most. The office is engaged in a series of endeavors, particularly through its Office of Wastewater Management, Office of Groundwater and Drinking Water, and Water Infrastructure Resilience and Finance Center. OW will continue to be focused on climate resilience issues, particularly with respect to drought, access to water, and risks from extreme weather events. Another priority is the development of information tools and public education to help people better understand water challenges and become more engaged and help support accountability at the community, state, and federal level around drinking water safety and water quality in general.

Chair Moore said the Urban Waters Program was well intentioned, but had become very divisive in many communities and led to unnecessary competition among grassroots groups. He suggested sitting down with EPA staff early in 2017 and addressing some of the program's challenges. He added that there are many environmental justice communities that had dealt with water issues for a long time that were not chosen for Making a Visible Difference. He praised OW for identifying the issue of sovereignty for native nations. **Mr. Beauvais** promised to follow up on the Urban Waters Program.

Vice-Chair Heaps told the Council it would follow the same process as the previous day, where as many members would be allowed to speak as possible, and presenters would be able to respond if there was time. She said she represented more than 200 environmental groups in the Chesapeake Bay area, and one of its priorities was dealing with the impacts of fracking and gas development, particularly pipeline development. This required her group to deal with the Federal Energy Regulatory Commission (FERC), which did not allow for much public comment. The pipelines tended to go through lower income communities, and had an adverse effect on groundwater and surface water. She asked what OW was doing about pipelines, and how her group could work with OW.

Sacoby Wilson spoke of the impact of Hurricane Matthew on the community of Lumberton, North Carolina. He asked if the water there was safe to drink, and if not, when it would be; who was communicating with the people who had been evacuated about water quality; and what public service announcements (PSAs) were being communicated over radio, television, and social media about the water. He mentioned drowning hogs, turkeys, and chickens from the flooding in Princeville, North Carolina and asked why the appropriate lessons had not been learned from Hurricane Floyd in 1999. He asked what type of indicators OW used for accessibility, affordability, equity, pollutants, infrastructure quality, leak history, discharge points, and other factors. He noted the particular risk to unincorporated communities.

Dennis Randolph expressed concern over infrastructure and prioritization of expenditures. He noted that bigger communities were not necessarily better at handling federal money. Priority should be given to well-run communities like Sandbranch. He called for EPA to support modern project delivery methods.

Beverly Wright noted that a new natural gas combustion turbine had been placed in New Orleans, and pointed to a report showing that some breaks in the levee were consistent with subsidence from the power plant. She asked whether the community could get any assistance from EPA. She added that there was a lack of grassroots infrastructure with respect to the Urban Waters Program. She asked whether there would be an opportunity for OW funding of projects by grassroots organizations.

Sylvia Orduno pointed out that lead had been present in the water in many Michigan communities even before the recent crisis in Flint. Another issue was affordability, which was deeply impacting many people's ability to even have safe water. Assistance programs are not a solution. Member Orduno added that local officials could be hostile to low income customers. She cited a May 2016 report on water quality in the U.S. She wanted the U.S. government to acknowledge that water and sanitation are human rights. She expressed concern over public-private partnerships that seemed to be edging towards privatization.

Charles Chase commented that many of the communities he worked with in Colorado were in a state of confusion over the complicated array of regulations around water, especially in light of a string of Clean Water Act variances granted to oil and gas companies.

Rosalyn LaPier recommended that OW look at the past when it worked with tribes to create interim regulations, considering that there were many interim regulations that had been in place for over 100 years. She suggested that OW partner with a tribe with strong existing regulations so that tribes could work together instead of having the federal government telling them what to do.

Arsenio Mataka stressed the importance of getting information and data to people. He mentioned that California was trying to develop a human right to water tool to talk about issues of affordability and accessibility, but there was a large data gap. He spoke of the need to develop an objective way of determining prioritization.

Vice-Chair Torres said he worked for the Border Environment Cooperation Commission, and mentioned the Project Development Assistance Program (PDAP), a water program with a prioritization process. He noted that the U.S. side of the U.S.-Mexico border was mostly small communities but the Mexican side was home to big cities like Tijuana and Juarez. He spoke of the need for prioritization in small communities and asked OW to meet with the EPA regions along the border.

Mildred McClain praised OW for doing more community-based work, although she was unsure how it was defining that term. She asked if there were crews focusing on environmental justice communities. She also asked if the national action plan included a priority for small cities and rural areas.

Mr. Beauvais said he regretted not having enough time to answer everyone's questions. **Vice-Chair Heaps** said NEJAC would welcome any written response from OW.

2.3 U.S. Environmental Protection Agency Office of Water Charge

Mr. Beauvais said the charge was broken down into four components. The first bucket is priority needs implementation. OW seeks input from NEJAC on what it sees as priorities in environmental justice communities, and how it can help with decisions around infrastructure and management, and gathering data on assessing needs and prioritizing work.

The second element consists of tools for community capacity building. Much of the focus of infrastructure finance discussion is on how to expand the overall pie. There is a gap between existing needs for investment in water infrastructure and the level of investment provided. Just as important is the capacity of communities to access, sustainably use, and manage funding. OW seeks to build technical, managerial, and financial capacity at the community level. It asks NEJAC members for their thoughts on best practices for capacity building.

The third category is community engagement and education. Communities do not always have the information they need to recognize where there may be issues, what resources and support may be available, and how to effectively participate in processes. OW asks the Council for input on approaches and best practices to support meaningful engagement in those processes.

The final component is water system partnerships. Much of the dialogue around water infrastructure finance and management focuses on the potential role of partnerships in helping to support smaller communities and communities in need in their work. Partnerships can take many forms. Over 90 percent of the country's water systems serve fewer than 10,000 people; over half serve fewer than 500. OW wants to hear from NEJAC and the communities it represents how to capitalize on partnerships.

Mr. Tejada said the Council would constitute a workgroup consisting primarily of NEJAC members. The group has to be smaller than a NEJAC quorum. Mr. Tejada asked members to think about how many people should be in the group, what percentage should be Council members, and who should be included from outside NEJAC. The Council could make these decisions later. Mr. Tejada introduced Aaron Bell from OEJ and Joe Tiago from OW, who would serve as DFOs for the workgroup.

Chair Moore felt it was clear there is a crisis. He does not believe the fact that not all the data has been gathered should be used as an excuse for not acting. He added that sometimes NEJAC can get pigeonholed into smaller areas of focus. He urged NEJAC members not to forget EPA's interconnectedness with other federal agencies and the role those agencies could play in fulfilling the charge.

Melissa McGee-Collier commented on the way information was gathered. It bothered her that the federal government could claim to know about the environmental justice issues facing communities without actually talking to them. She suggested that the workgroup include people on the ground.

Cynthia Kim Len Rezentes reminded the Council she had just learned of an upcoming Senate field hearing in Hawaii regarding water management and efforts to improve water security. She did not know if the scope of the hearing was limited to Hawaii, but she knew there would be 15 staffers flying out there, so it seems like a big deal. She reiterated her fear that Congress and NEJAC were heading off in different directions. She echoed the need to expand NEJAC's audience.

Charles Chase regarded the charge as a great opportunity for NEJAC. He commented that in his experience, EPA has been reluctant to use the stick to get people to do what needs to be done. He wants to know how EPA would assure things happen at the state and local level. He understood EPA's inaction in some circumstances, but there were other times he did not understand.

Deidre Sanders noted that the west had to deal with water scarcity issues, and mentioned a saying that whiskey was for drinking and water was for fighting over. She wanted the charge to focus on more than just access to improved infrastructure, but also address the finite limitation on water availability, how water is distributed, and what it costs. She also wanted to see how OW interacts with other agencies, such as DOE. She expressed interest in partnerships, questioning whether this would lead to regulated monopolies as with electrical utilities.

Mildred McClain expressed concern over working with states, pointing out that many of them are not friendly on environmental justice issues. She asked how EPA would hold those states accountable.

Sylvia Orduno asked how the interests of business and the development of new water authorities would factor into the charge, pointing out that they were often at odds with community needs. She spoke of the disproportionate burden in water-rich states, and how the water bottling companies are making it more difficult for communities to manage existing water.

Sacoby Wilson emphasized the accountability issue. He felt the organizing structures should be water finance centers, which should be community-based and community-driven.

Erica Holloman mentioned the importance of stormwater management in the Chesapeake Bay region, and how changes in the rules were causing things to be passed on to the local level. She suggested the charge may need to include something about stormwater.

Lisa Finley-DeVille commented that it took three million gallons of water for one fracking well. She added that wetlands in North Dakota had been destroyed to sell water. She expressed hope for a stipulation that water could not be sold from the shoreline. She mentioned being relocated from Elbowoods to Mandaree, where there was water and sewer back-up in the school.

Chair Moore commented that he does not want NEJAC to take the interagency component too lightly.

Mr. Beauvais said he thought the charge was capacious enough to include all of the subjects that had been raised. The actual challenge would be keeping it focused enough to be effective. Mr. Beauvais felt working with federal, state, and local agencies was an opportunity and a challenge.

2.3 Workgroup Update: Charge on Youth Perspectives on Climate Change Workgroup Update

Chair Moore asked NEJAC members to sign a card for Horace Strand, whose wife had recently passed away. He announced that NEJAC would explore ways to include more time for dialogue between Council members and panelists. He said there would be a discussion that afternoon on the steering committee. He informed members that 130th Street in Chicago had been renamed Hazel Johnson EJ Way.

2.3.1 Alyssa Edwards, U.S. Environmental Protection Agency

Ms. Edwards said she had been honored to help the members of the workgroup answer this charge over the past six months. She introduced the panelists.

2.3.2 Samantha Shattuck, Pegasus Technical Services

EPA has requested that NEJAC provide recommendations to assist the agency in developing best practices for addressing climate change concerns as highlighted from a youth perspective. The workgroup has focused on three parts to the challenge: how the EPA could engage with youth on climate change and adaptation, what activities and mechanisms the EPA should consider to authentically engage and work collaboratively with youth, and what best practices were recommended to address health vulnerabilities.

The workgroup held its first meeting in March 2016. It has 15 members and two alternates, all between the ages of 18 and 29, and four NEJAC advisors, including Chair Moore, Fatemeh Shafiei, and Charles Chase. The members work on community organizing, resiliency work, and public health. They include Ph.D. candidates as well as graduate and undergraduate students, and cover nearly all EPA regions. One member is from Mexico and another is from Ghana. There are two representatives from indigenous tribal nations, one in Alaska, and one along the Arizona-New Mexico border.

Trying to manage a group made up of people from such a wide range of experience has yielded interesting learning experiences. In order to facilitate more participation, the group split into subgroups. The co-chairs, Ms. Shattuck and Ms. Nieto, have made personal phone calls to each of the members. It went through a democratic process to determine its focus areas. It settled on community inclusion and support and climate justice research. From there, it has tried to focus on how to address its charge.

It used SurveyMonkey to conduct an internal survey of its members in an effort to cross-pollinate experience, resources, and build a more permanent coalition for the future. The survey asked members what they had worked on so far, with whom they had worked, how they were engaging, and the best practices they had used or seen. Respondents mentioned working with a wide variety of overburdened communities. Nine out of 15 respondents said they were working with youth directly, either in mentoring or training opportunities. Education is the most popular way of engaging youth and overburdened communities. Outreach and organization are popular ways of engaging vulnerable communities; mentorship and mobilization are popular for working with youth.

Ms. Shattuck presented the Council with some initial recommendations for working with vulnerable communities: (1) focus on relationships based on trust; (2) set realistic goals; and (3) make meetings accessible. For working with youth, she offered these recommendations: (1) focus on leadership development, mentorship, and outreach; (2) focus on cross-sectional experience.

2.3.3 Yudith Nieto, Texas Environmental Justice Advocacy Services

Ms. Nieto explained that the workgroup also allows for anonymous process feedback. Many have praised the diversity of the group. Several members have suggested an in-person meeting. Not meeting face-to-face has made it difficult for members to work together. So far the group has held a series of 60-90 minute conference calls; a lot of members regard that time as insufficient for discussing relevant issues. The co-chairs have considered more frequent conference calls, but that can be difficult to arrange given everyone's busy schedules. All members have shown considerable passion for environmental justice work. The group's success is based on mutual respect.

Activities members are engaged in include climate resiliency projects, gardening in food deserts, water testing and analysis, community outreach, research on the potential health impacts of biomass and oil and gas effects, art and activism workshops, and solidarity actions.

Ms. Nieto offered the following additional recommendations: (1) bring together the youth for in-person meetings; (2) provide more guidance, like a timeline on specific deliverables; and (3) consider a youth workshop during NEJAC meetings.

2.3.4 Anthony Torres, Sustain US and Sierra Club

Mr. Torres said he was excited to see the interconnectedness of each member's projects. He felt the world was at a critical moment with respect to climate change. The effects of climate change are here today, but there are also more and more young people on the front lines. He saw the potential for binding and aligning around what work has been done and what work can be done in the future. He felt it is important to ensure EPA not only funds youth work, but also provides opportunities and access to leadership. He stressed the need to consider how the policies of today affect the world of tomorrow, and for including youth at the decision-making table.

Deidre Sanders praised the workgroup for its diversity and its activities. She encouraged EPA and the team to be open to talking with businesspeople and others outside the environmental justice movement who would be affecting climate change. She supported the idea of an in-person workgroup meeting, and volunteered to be a part of any discussion on institutionalizing intergenerational equity.

Vice-Chair Heaps commended the group for making progress, noting how difficult it was, especially over the phone. She offered herself as a resource, mentioning her work running conference calls with 18 executive directors.

Paul Shoemaker said he was inspired by the workgroup. He commended the group for recognizing the importance of not seeing communities displaced after improvements. He added that public agencies such as the one he worked for depended on groups like the workgroup to keep government's feet to the fire.

Kerry Doi was glad to see youth involvement. He commented that there could never be enough years, and suggested that it was time for the older generation to step aside and let younger people have more seats at the table. He noted that only one group member came from an urban environment, and urged the group to continue diversifying. He observed that EPA and NEJAC had limited budgets, but suggested the Council request that a portion of the budget be set aside for youth involvement.

Lisa Finley-DeVille pointed out that youth were the ones that would have to deal with the long-term effects of climate change. She reported speaking with Ms. Edwards on creating a climate and youth group with her tribe's college, which was in process. She described her tribal leaders as pro-oil, but noted that

many of its youth had organized in opposition to the Dakota Access Pipeline. She said she had been instructing them on how to submit public comments. She noted creating a curriculum around climate change was a big challenge.

Hermila Trevino-Sauceda expressed excitement over the group's work. She recalled her formative experiences organizing with United Farm Workers as a teenager. She urged the group to include migrant farmworkers, and to explore the issue of food and pesticides. She added that she had a few young migrant farmworkers in mind if the group had space.

Erica Holloman commended the group for its work, and encouraged it to extend beyond the issue of climate change. She stressed the need for NEJAC to consider the perspective of young people, and the importance of leadership training. She acknowledged NEJAC's limited funds, but noted there were foundations and entities that could help.

Beverly Wright said youth is fleeting, and expressed concern that only seven percent of the workgroup worked with people of color, and asked whether there was some mistake in how the survey was framed.

Michael Ellerbrock urged the group to think carefully about including other sectors, insisting that any discussion about climate change must include economics. He noted that two of the most conservative institutions in America were the military and Wall Street, both of which acknowledged the reality of climate change and adapted practices. **Deidre Sanders** offered herself as a resource for reaching out to the business sector.

Ms. Shattuck acknowledged there must have been some mistake in the survey because it did not make any sense that only seven percent worked with people of color.

Ms. Nieto and **Mr. Torres** promised to re-examine the survey.

Chair Moore asked the workgroup to keep three things in mind: (1) never forget where they came from; (2) always remember those who allowed them to be where they are; and (3) always give back to others what has been given to them. He also encouraged more emphasis on "we" and less on "I," and to keep in mind the rural perspective. He supported the idea of more workshops and training. He called on OEJ to provide the workgroup with travel assistance so it could have an in-person meeting. He invited the workgroup representatives to share next steps.

Ms. Shattuck said the group was trying to come with a report to address its charges. To do this, it would split into sections focusing on different aspects of the charge. It hoped to have its first draft completed by February, followed by something it could share with NEJAC in March.

2.4 Update: Environmental Justice 2020 Action Agenda

Charles Lee, EPA's Deputy Associate Assistant Administrator for Environmental Justice, asked those who had worked on EJ 2020 to stand and be recognized. EJ 2020 is EPA's strategic plan for environmental justice from 2016 through 2020. It builds on the foundation laid over the past eight years through the work done on EJ 2014. One of the most difficult aspects of environmental justice is integrating it into the regulatory decision-making process. Environmental justice problems are not easy to fix, which is why EPA has a strategic plan.

EJ 2020 will keep EPA on course, and will help it evaluate how much it has been able to move environmental justice to another level. EPA's vision is that by 2020 it will have integrated environmental

justice into everything it does to cultivate strong relationships, improve on-the-ground results, and chart a path forward for achieving better environmental outcomes and a reduction of disparities in the nation's most overburdened communities.

There are three goals to EJ 2020: (1) deepen the practice of environmental justice in EPA's own programs; (2) work with partners to expand EPA's impact; and (3) demonstrate progress with significant national environmental justice challenges. EJ 2020 involves all parts of EPA at all levels. Mr. Lee surveyed EPA staff members, and found they were most proud of the fact that involved the whole agency.

With EJ 2014 EPA had developed and issued guidance on integrating environmental justice into rulemaking: (1) identify when and where in the process of developing rules to consider environmental justice; and (2) determine how to assess for environmental justice. EJ 2020 will include an annual review of how EPA considers environmental justice in its rules, and a rigorous analysis every three years. The plan points out the significance of public participation in the rulemaking process. EPA has made a commitment to undertake enforcement strategies in at least 100 overburdened communities.

In EJ 2020 EPA hopes to lead by doing. One of the key steps to integrating environmental justice is working with states as co-regulators. The plan includes an articulated approach, a framework for joint governance, identifying best practices, establishing shared expectations, and joint accountability. Mr. Lee noted that many useful tools already existed, including California's CalEnviroScreen, South Carolina's tools for public participation, and New York's brownfield program. The most recent Environmental Council of the States (ECOS) meeting included a plenary session on environmental justice for the first time. John Stine, the president of ECOS, listed equity as one of his priorities. EJ 2020 includes a strategy around community revitalization.

Through a long process, EPA identified four areas to monitor progress on: lead disparities, drinking water for small and tribal systems, fine particle air pollution, and reducing human exposure to contamination at hazardous waste sites. It pinpointed existing and new measures that could help it track progress in those areas. It has divided this goal into two phases: (1) the identification and implementation of programs; and (2) identification of other areas for the development of potential measures. EPA hopes to receive considerable input from communities.

EJ 2020 needs to be more than just words on a piece of paper. Its heart and soul must be collaborative partnerships. EPA seeks NEJAC's input on how best to implement the plan.

Rita Harris acknowledged that putting the plan together was difficult. She identified one of the biggest obstacles as the states not understanding environmental justice. She asked how EPA envisioned it would get states to do more than they did in the past.

Erica Holloman commented on EPA's plans to examine 100 overburdened communities and asked how it would determine what communities those would be. She urged EPA to work with the interagency working group because those revitalizations would bring in other parts of the federal government. She praised EPA for emphasizing measurable progress.

Sacoby Wilson stressed the importance of citizen science. He called on EPA to integrate as much of the health impact framework as possible into the NEPA process. He felt it was important to include resiliency and to have an equitable development framework. He also spoke of the need for health data.

Mildred McClain underscored the point about how the 100 overburdened communities would be identified. She asked if EPA had considered how it would work on environmental justice with the more

recalcitrant state and local governments. She encouraged EPA to consider radioactive waste when looking at human exposure to contaminants.

Vice-Chair Javier Torres asked how EPA would keep states accountable for following EJ 2020, and how crises like the one in Flint could be prevented in the future.

Deidre Sanders asked how reducing human exposure to contaminants would work out, and what that would mean for existing resources and facilities operating under old permits. She felt there would need to be an incentive for upgrading facilities. She asked where the resources were to reduce community vulnerability. She cautioned that it could not be the sole responsibility of industry to reduce socioeconomic neglect. States, local governments, and other entities must be willing to invest as well.

Vice-Chair Heaps invited Mr. Lee to respond to members' comments for three or four minutes.

Mr. Lee spoke of the need to see the collective vision for 2020 and beyond in a continuum. EJ 2020 had many provisions that were significant and positive but that did not go far enough. EPA would like to hear from as many people about their vision for 2020. The strategic plan built on many past lessons learned about how to work in communities and how to support a community's vision. The federal government has devoted considerable attention on how to do place-based work in recent years. The Office of Management and Budget (OMB) has an MOU with several entities around place-based work. Determining the 100 overburdened communities will depend on the ongoing process of implementing EPA's enforcement programs. Mr. Lee conceded that much remained to be done to set a baseline for effective practices around environmental justice in the states. He felt it was important to set up general expectations for what states should be doing. EJ 2020 does address the relationship between environmental justice and Title VI. The environmental justice and civil rights programs at EPA intend to consciously work together and share best practices. Mr. Lee welcomed discussion around EJ 2020.

Mr. Ali cautioned that sometimes smaller things with huge impacts got overlooked. He mentioned that climate justice was not even discussed in the federal government until EPA began pushing that narrative forward. Emphasis on equitable development was changing the way people thought about policy and investments. Revitalization now referred to community-driven revitalization, and it was all because of convincing people they needed to change their paradigm if they wanted sustainability.

Vice-Chair Heaps asked members to return from lunch by 1:35 p.m. The sooner they returned, the more time they would have with OCR.

2.5 Workgroup Update: Charge on Monitoring

Dennis Randolph, chair of NEJAC's workgroup, said the group had been working on the monitoring charge throughout 2016. The group has four charges. Mr. Randolph pointed members to documents in their packets. The group has been talking about data available from settlement agreements and how much it needs or wants to collect, and how it is disseminated or used by the community. Mr. Randolph hopes to have something by the next NEJAC meeting he can submit to the Council for its approval.

One question the workgroup has asked is, does the community understand the impact of a facility, and are they able to act on the information. To a limited extent, it feels that they are, but it needs a lot more data and suitable tools. Another question is do communities have access to data posted on the website? Unfortunately, the access is limited and not always easy. A third question is what other ways are there to provide information? Mr. Randolph stressed the importance of tailoring the information to individual communities. The workgroup has also asked, is there a more usable format. There are a lot of formats,

each requiring different skills. The group has considered what forms of technical assistance existed. This is one of the items it has tried to flesh out the most.

Mr. Randolph estimated the group's document to be 90 percent complete. He is particularly interested in getting input from anyone who wants to offer it.

Vice-Chair Heaps reminded NEJAC that it received the monitoring charge a year before, when OECA presented it with questions about monitoring in response to a permanent settlement centering around whether the information being provided was used and usable by communities. Communities need to be able to understand what is happening around them. Settlements typically arise in response to exposure from a single facility. The workgroup has asked what to do about cumulative exposures and how to reconcile them, how to reconcile what the facility is being asked to do with the importance of community monitoring, and whether there is a way to use monitoring in settlements and permits to support robust community monitoring programs.

Deidre Sanders named context as one of the big issues; numbers are useless if people do not know what they mean. There needs to be a way to answer the basic questions of a community. The group feels the need for a total concept of how the monitoring data works together, what is being measured, how it is being recorded, and whether there is baseline data.

Vice-Chair Heaps said the group had also discussed the importance of cultural relevance. The process must involve community input from the beginning to ensure this. She encouraged NEJAC members to offer feedback.

Beverly Wright pointed out that baseline data is constantly changing. It was based on the history of the first facility, and had nothing to do with health. Ms. Wright added that any data communities collected should be the starting point of an investigation. **Deidre Sanders** clarified that baseline data also depends on comparative communities.

Sacoby Wilson mentioned being at a recent meeting on particulate matter (PM) and its contributions to heart disease, diabetes, asthma, morbidity, and mortality. He stressed the importance of looking at social and demographic composition, underlying vulnerabilities, both at the community and individual levels. He added that much of the necessary data was not being collected. He expressed confusion over the monitoring issue. He pointed out that the National Advisory Council for Environmental Policy and Technology (NACEPT) had a section about citizen science, but that NEJAC's charge did not really allow it to discuss the topic. He argued that the monitoring discussion was incomplete.

Arsenio Mataka thought that it would be a mistake not to get moving on monitoring very quickly. He reminded the Council that EPA was charged with protecting people and the environment. It was clear something would be done about monitoring; the big question was what role the agency would play. Member Mataka expressed a willingness to participate in a workgroup focused on citizen science.

Vice-Chair Heaps suggested Members Wilson and Mataka get together and draft something for an attachment with a charge, and NEJAC could determine how the pieces fit together.

Kerry Doi felt the group's work is important for community engagement. He asked how to reach all the necessary people. He pointed out that he represented an organization which employed 40 different languages and dialects to convey its message. He noted that every community is different, and suggested that EPA look at respected and trusted organizations within each community as potential inroads.

Mr. Tejada said he had briefed NACEPT, which had promised to work with NEJAC on this issue.

2.6 NEJAC Retrospective Report

Matthew Tejada, Director of the Office of Environmental Justice (OEJ), informed NEJAC that the retrospective report was available online and that he was available to answer any questions.

2.7 Dialogue with U.S. Environmental Protection Agency Leadership: OCR

Lilian Sotolongo Dorka, Acting Director of the Office of Civil Rights (OCR) reminded NEJAC that she had addressed the Council at its September 2015 meeting, and that she would like to speak at NEJAC meetings as often as possible. She said she understood wholeheartedly the importance of EJ 2020 to OCR's strategic plan and vice versa. She mentioned the extensive collaborations between OCR and OEJ leadership at biweekly meetings and more informal settings.

The day Ms. Dorka addressed NEJAC in 2015 OCR had released its first strategic plan for external compliance. The plan marked the first time OCR had transparently committed to paper what it hoped to do to strengthen EPA's civil rights program. It identified three critical goals and set out a series of ambitious benchmarks. One element of the plan was managing the docket more strategically to make sure that cases kept moving. The number of cases OCR has received jumped from 16 in FY2014 to more than 45 in FY2016. Ms. Dorka attributed the increase to a greater willingness to trust EPA and OCR.

OCR does not have time to build one step at a time. Instead it must build ten steps simultaneously. A committed staff is crucial, as is the support of other offices at EPA headquarters and in the regions. Civil rights do not reside in just one office; they are the entire agency's responsibility, just like environmental justice. OCR hopes to be a federal benchmark for running civil rights programs.

The strategic plan has received comments from interested stakeholders, including some NEJAC members. OCR is getting ready to issue the final version. The office seeks to take a proactive approach, not just respond to complaints.

In December 2015 OCR released its first case resolution manual. For the first time there is a document that captures OCR's standard operating procedures (SOPs) for case management in one place. This has proven a useful resource for EPA staff and the general public. OCR has received considerable positive feedback during the comment period, and will finalize the manual soon.

OCR is committed to educating recipients, making sure they understand their responsibilities, and that communities understand their rights. It is providing extensive technical assistance and outreach. It plans to roll out a toolkit, a less legalistic recitation of what the laws and responsibilities are. It has shared an outline of the toolkit with ECOS and various advocacy groups. It is preparing a dear colleague letter explaining the toolkit.

Administrator McCarthy is committed to shoring up and strengthening EPA's civil rights program. She and Ms. Dorka meet regularly. Together they are trying to get OCR to a place where it is a viable office, where people can bring complaints and raise questions.

OCR has issued a notice of proposed rulemaking (NPRM) to amend nondiscrimination regulations. It has received a lot of comments, most of which were in favor of the amendments. The amendments would strengthen and clarify the authority of OCR to perform compliance reviews and collect data and remove arbitrary and rigid timeframes. Some of the commenters opposed the amendments, citing OCR's past

track record. Ms. Dorka acknowledged that only time would tell whether the skeptics were right or wrong, but asserted that she and her staff were deeply committed to civil rights and transparency.

Chair Moore reminded the Council that (1) EPA had been in existence for 46 years, or about three quarters of his life; (2) when EPA was founded in 1970, community groups were wrestling with many questions around environmental racism; and (3) there had been an advisory council dedicated to Title VI which did commendable work and made a series of recommendations. He argued that many of those recommendations were just as viable in 2016 as they were when they were proposed. He urged NEJAC members to examine them.

Dennis Randolph praised OCR for the important work it was doing. He considers environmental injustice a civil rights violation. He felt establishing case law is essential to making progress on civil rights. A key component of environmental justice is ensuring that everyone plays by the rules. Local communities need help from EPA to ensure that. Member Randolph encouraged OCR to identify the strong cases and fight for them first.

Kerry Doi identified former NEJAC member Vernice Miller-Travis as a strong, articulate voice on civil rights. He mentioned growing up in plantation housing and being exposed to pesticides, which fostered his commitment to civil rights. He commented that he did not understand the difference between EPA's OCR and its counterparts in other federal agencies, if there was a point where one's purview ended and the other's began.

Sacoby Wilson commented that the Brandywine case was currently in alternative dispute resolution (ADR), but was unsure whether that was appropriate. He said it was important for EPA to get things done. He proposed allowing Vernice Miller-Travis the opportunity to address the Council.

Arsenio Mataka explained that he helped handle California EPA's civil rights cases, and it had taken his office a year and a half to get through them. He added that legitimately investigating a complaint could be time-consuming, and that he did not think firm timeframes were appropriate. He said he was glad to see OCR create a complaint manual. He commented that states would need help with ADR. He pointed to the success his state had had with a settlement agreements as a means of helping EPA.

Chair Moore asked if allowing Vernice Miller-Travis to speak was permissible under FACA rules. **Mr. Tejada** said a member would need to ask for an amendment to the agenda. Several NEJAC members moved for an amendment to the agenda allowing Ms. Miller-Travis to speak; several others seconded. The motion passed without objection.

Vernice Miller-Travis reminded the Council that she had completed her second six-year term on NEJAC in August 2016. Her first term had been from 1996 to 2001, during which she had chaired the Waste and Facility Siting Subcommittee. Originally from New York City, she was the co-founder of We Act for Environmental Justice in 1988. At one time she worked as a research assistant for Charles Lee on the United Church of Christ Commission for Racial Justice. Her life's work has been the application and enforcement of the Civil Rights Act. She said that environmental justice was no longer contextualized within the issue of racial discrimination, as if the issue had been resolved. She assured the Council that racial discrimination had not been resolved; it just was not a priority. She did not blame Ms. Dorka for this development, although she was critical of OCR. She praised Ms. Dorka for hiring competent and qualified civil rights professionals. She noted that many officials within EPA did not consider civil rights important, and that Ms. Dorka and her staff were working against that. She read from the U.S. Commission on Civil Rights report excoriating EPA for its lax enforcement of environmental justice laws. She noted there had only been one affirmative finding of discrimination in the history of the agency. She insisted EPA had not

incorporated environmental justice as a substantive right into its decision-making processes. She mentioned that EPA's inability to ensure that recipients of financial assistance complied with Title VI was exacerbated by its lack of resources and small staff levels. She referred to the Civil Rights Act of 1964 as the only statutory ground environmental justice stood on. If EPA failed to enforce it, it failed to move forward the environmental justice agenda. She encouraged NEJAC members to get fired up about environmental justice. As the acting chair of the Maryland Commission on Environmental Justice and Sustainable Communities, she did not believe the Brandywine case should be in ADR since the state of Maryland did not have an existing environmental justice program.

Beverly Wright identified the problem with OCR as a lack of legal activity. She felt NEJAC needed to be able to answer the question, how can it make more happen? She urged members to consider what type of advocacy it should rally around to change the culture within EPA. Outside NEJAC, she suggested members look for ways to apply pressure and develop a real grassroots uprising. She commented that the Mississippi River chemical corridor would not exist if OCR enforced environmental justice laws the way it should.

Erica Holloman applauded OCR's presentation and member responses, and recommended a session for NEJAC to discuss Title VI and Executive Order 12898, stressing the importance of language.

Vernice Miller-Travis noted the presence of the plaintiffs in the Brandywine case, and that they were not party to the ADR. She provided NEJAC with their contact information so it could establish a dialogue. **Ms. Dorka** said she would not discuss specific cases at the meeting.

2.8 NEJAC Wrap-Up: Reflection and Conversation

Having conferred with Mr. Tejada and the Vice-Chairs, **Chair Moore** observed that holding consideration of recommendations until the end of the meeting, while sometimes necessary, often put the Council in a difficult position as it struggled to maintain a quorum. He noted that newer members might not be as clear on the subject of the steering committee, and proposed that the vote on the committee be held via email. He stressed the important role the steering committee would play over the next year, and asked those interested in serving to let staff know as soon as possible.

Mildred McClain asked how many individuals could serve on the steering committee. **Mr. Tejada** said the Committee included the Chair, the Vice-Chairs, and three additional members.

Chair Moore said the Council would also address the issue of the water workgroup by email. **Mr. Tejada** added that his staff would solicit feedback from membership on who was interested in serving. As with NEJAC, diversity of the workgroup's membership was important to consider. He asked members to be attentive to emails and respond to them. He pointed out to members without a workgroup that NEJAC would be forming workgroups to address some of its other charges, so there would be other opportunities to serve.

Mr. Tejada told NEJAC members they would soon receive an email asking for their travel documents, and urged them to submit that information as soon as possible so they could be reimbursed for their expenses. He asked members to look at their contact information on the membership list and submit corrections if necessary. He told them to watch for an email about uploading their biographical information.

Hermila Trevino-Sauceda asked about a conference call NEJAC had held on worker protection standards, and expressed fear that that item would end up in limbo. **Mr. Tejada** said it was proving difficult to get started on that issue, but he promised to follow up.

Vice-Chair Heaps said the steering committee held conference calls about once a month and stressed the importance of regular participation in the call. She explained that the steering committee was in charge of planning business calls and setting the location and agenda for public meetings. She pointed that workgroups were different from the Council in that members, in addition to sharing their ideas, were expected to write those ideas down. She added that workgroups must be smaller than a NEJAC quorum, so the maximum number of members was 15. She promised to poll NEJAC members for input on what they liked and did not like about the meeting, and to get a sense of how much time each speaker should be given. She pointed out that NEJAC had composed a letter in March 2015 asking that worker protection standards be passed, and that she had drafted a one-page recommendation for the Council's consideration. She presented a table of the public comments the Council received the previous night.

Mildred McClain asked that two boxes be added to the table: one concerning the timeframe for addressing a particular piece, and one noting who was responsible for the particular piece. **Vice-Chair Heaps** said she had envisioned those as being part of the action piece.

Paul Shoemaker noted that member attendance was rapidly dwindling, and suggested that it hold any necessary votes soon. He praised the recommendation on worker protection standards Vice-Chair Heaps had drafted, and said he would like to hammer out the details and finalize and submit it in the near future. **Cynthia Kim Len Rezentes** noted the recommendation seemed to be targeted more toward organized farmworkers, and felt it was important to recognize other, less organized groups.

Chair Moore reminded the Council that Member Harris had proposed a follow-up letter with regard to Title VI. He felt it should be a high priority to draft the letter and send it to the administrator. He mentioned Steve Taylor's testimony about working with dollar stores, and asked for support from the Council on moving that forward.

Vice-Chair Heaps noted that the Council seemed to support the worker protection letter, Title VI follow-up, and follow-up on discount stores. She volunteered to take the lead on worker protection standards. Since there was no longer a quorum, she asked members to comment on the letter. **Mr. Tejada** added that the Council would need a public meeting to approve the letter. He urged members to closely review the proposed text so the Council could move in a timely manner.

Charles Chase asked how fast the Council could get a letter out. **Mr. Tejada** said the shortest it would take would be about a month.

Sylvia Orduno asked if there was, in fact, a quorum. It was established that a quorum was present, so Member Orduno asked that the Council vote on Flint and the recommendations proposed by Claire McClinton. **Vice-Chair Heaps** stressed the importance of recommending something within EPA's gamut. **Deidre Sanders** proposed responding back to the requesters with what NEJAC believed would be an appropriate or useful recommendation. **The Council** approved Member Sanders' recommendation.

Member Orduno volunteered to oversee the Flint letter; **Chair Moore** offered to take charge of Title VI and the discount stores.

Rita Harris asked who was in a position to make changes with respect to Title VI. **Vice-Chair Heaps** replied that NEJAC's recommendations typically went to the EPA administrator. **Chair Moore** said the

Council was reviewing the recommendations of public commenters, deciphering what was applicable with respect to EPA, and presenting them to requesters.

Hermila Trevino-Sauceda expressed concern about how long the recommendations would take. **Chair Moore** pointed out that all letters would come back to the Council for approval, so it was important that the letters move quickly. **Member Trevino-Sauceda** asked if the Council could agree on worker protection standards before it lost quorum. **Chair Moore** said it already had.

Vice-Chair Heaps asked NEJAC members if there were any other items they would like to move forward on quickly. **Sylvia Orduno** asked that the Flint recommendation include issues specific to undocumented communities. **Chair Moore** agreed that they should be included in the letter. **Mr. Tejada** said staff would put together one mass action email early the following week asking for responses from members. Members would be responsible for making sure everyone was included on each issue that wanted to be.

Vice-Chair Heaps asked Mr. Tejada to provide feedback on EPA leadership's responses to members' questions and comments. **Mr. Tejada** promised to obtain those responses and distribute them to NEJAC. He added that he was committed to getting the youth group together at least once in the coming year.

Vice-Chair Heaps noted Kendyl Crawford's request for an environmental justice leadership academy in Region 3. **Erica Holloman** proposed that the letter be region-specific. **Sacoby Wilson** commented on the importance of taking advantage of funding opportunities. **Vice-Chair Heaps** noted that decisions often occurred on a regional level, and asked if there would need to be separate requests to the administrator for each region.

Mr. Tejada pointed out that the budget for FY2017 would be frozen under a continuing resolution. In effect, that would be a cut because it did not adjust for inflation. The next budget that was open to negotiation would be for FY2018.

Rita Harris asked if there were any other gatherings, trainings, or meetings planned for 2017 for the leadership academy. **Mr. Tejada** said that EPA hosted the Community Involvement and Training Conference every two years. The next conference would be in Kansas City in August 2017. EPA was seeking greater balance at those meetings between federal and community representatives. He mentioned a workshop in Region 6 and a leadership academy in Region 4. He proposed putting this item on the business agenda for a teleconference. **Sacoby Wilson** pointed out that the American Public Health Association (APHA) was meeting in Atlanta from October 29 through November 2 and suggested that might be a good opportunity. **Chair Moore** agreed those were good suggestions. He noted that the Council had either lost its quorum or was about to.

Sacoby Wilson mentioned the President's Task Force on Environmental Health and Safety Risks to Children, and proposed sending the task force a letter on lead exposure. He called for a NEJAC discussion on exposing children to various contaminants.

Mr. Tejada provided the Council with an update that the Lumbee were in fact a state-recognized tribe, that the governor had met with them and assured them their needs would be met. **Sacoby Wilson** said it was incumbent upon EPA to ensure this actually happened.

Sylvia Orduno asked if NEJAC would act on Quentin Pare's recommendation on the U.S. Commission on Civil Rights report on Title VI. **Vice-Chair Heaps** felt that would be an appropriate agenda item for a future meeting, and suggested NEJAC could receive briefings from experts. **Mr. Tejada** commented that the drafters of the letter would probably want to read the report.

Deidre Sanders pointed out that one of the topics of the Council's October 11 business meeting had been following up with public commenters. **Vice-Chair Heaps** asked if she was volunteering to do that; **Member Sanders** said it was an appropriate task for staff; **Chair Moore** agreed. **Mr. Tejada** said staff would do that if the Council provided guidance on what to say.

Sylvia Orduno asked if it was appropriate to incorporates some of the statement she shared from the June 2 meeting into the OW charge. **Ellen Drew** felt that the charge was big enough that it already incorporated the statement; **Vice-Chair Heaps** agreed.

Charles Chase observed that NEJAC had the potential to turn over several letters fairly quickly. He asked that a public meeting be set as quickly as possible so the Council could move these items within a minimal timeframe. **Mr. Tejada** promised that the master email would include a timeline, but he cautioned that speed was not always conducive to a good letter. **Deidre Sanders** proposed the staff do an internal sort and grading of the letters based on importance and how easy it would be to achieve consensus.

Sacoby Wilson volunteered to help with food stores and Flint.

Chair Moore felt NEJAC's current practice was not constructive. He commented that the Council had two days of rich discussion, but that it rushed through recommendations at the end. **Karen Martin** of the NEJAC staff proposed that more business meeting calls be planned so that the Council would have more time for discussion. **Cynthia Kim Len Rezentes** observed that the productivity of Council meetings typically dropped sharply after noon on the last day. She proposed that the last day of meetings be a half day. **Ms. Martin** said staff gave members as much advance notice as possible before setting each meeting, and that she asked members not to schedule departing flights too early so that the Council could have a quorum for the full meeting. She promised to ask the travel office to offer flights at times that accommodated the schedule of the meeting. She suggested members be given a refresher orientation on the next conference call. **Paul Shoemaker** commended staff for organizing travel for the members. He offered to serve on the steering committee and proposed restructuring the agenda for NEJAC meetings.

Sylvia Orduno commented that it would be helpful to have WiFi access in the meeting room. She proposed posting recommendations on the screens set up throughout the room. **Ms. Martin** said that approval for WiFi access in the meeting room had just been granted and should be up and running by the time of the next NEJAC meeting there.

Erica Holloman suggested a NEJAC orientation manual that members could refer to. She mentioned hearing talk about shortening NEJAC members' terms from six years to two, and pointed out that it would take her two years to get acquainted with NEJAC. She encouraged the Council to create space at the table for young people.

Chair Moore noted the absence of a quorum and closed the meeting.

APPENDIX A
LIST OF ATTENDEES

National Environmental Justice Advisory Council October 12-13, 2016 Meeting Attendees		
First Name	Last Name	Organization
Zoe	Ackerman	Rachel Carson Council
Ofelia Aguilar	Aguilar	Farmworker Association of Florida
Mustafa	Ali	U.S. EPA
Jessica	An	UC Berkeley
Christine	Ash	U.S. EPA
Reginald	Barrino	U.S. EPA Region 4
Joe	Beauvais	Environmental Protection Agency
Aaron	Bell	US EPA
Linda	Belton	U.S. Dept. of Commerce/NOAA
Gregory	Bertelsen	National Association of Manufacturers
Arturo	Blanco	U.S. EPA Region 6
Janice	Bolden	US EPA Region 3
Joelle	Bowers	USDA
Ariadinny	Braz	
Maggie	Breville	USEPA ORD/NCER
Anthon	Bucci	Presidential Management Fellow
Sharon	Buccino	Natural Resources Defense Council
Tami	Buckner	Waste Management
Thomas	Burke	U.S. EPA
Pam	Buster	EPA
Pat	Carey - Brown	US EPA
Charles	Chase	University of Colorado -Boulder

National Environmental Justice Advisory Council October 12-13, 2016 Meeting Attendees		
James	Covington	US EPA
Kendyl	Crawford	VA Sierra Club
Taukecha	Cunningham	EPA
Ron	Curry	U.S. EPA
Dylan	de Kervor	U.S. Department of Justice, Civil Rights Division
Kerry	Doi	Pacific Asian Consortium in Employment
Melinda	Downing	Department of Energy
Ellen	Drew	Rural Community Assistance Corporation
Ari	E	National congress of Black women
Alyssa	Edwards	U.S. EPA
Hallah	Elbeleidy	EPA
Michael	Ellerbrock	Virginia Tech
Derrick	Evans	TCCI - Gulf Coast Community Initiatives
Gabrielle	Fekete	US EPA OIG
Cynthia	Ferguson	US DOJ/ Environment & Natural Resources Division
Jeanine	Finley	U.S. EPA
Lisa	Finley DeVille	Mandan Hidatsa and Arikara Nation Tomorrow
Paula	Flores-Gregg	EPA Region 6
Javier	Francisco Torres	Border Environment Cooperation Commission
Carol	Francois	Sandbranch...everybody's community!
Tamara	Freeman	EPA R7
Denise	Freeman	U.S. EPA
Shawn	Garvin	U.S. EPA

National Environmental Justice Advisory Council October 12-13, 2016 Meeting Attendees		
Venu	Ghanta	Duke Energy
Cynthia	Giles	U.S. EPA
Lauren	Gomez	The George Washington University
Bernadette	Grafton	EPA
Kamita	Gray	Brandywine | TB Southern Region Neighborhood Coalition
Terrence	Griffin	Board of Veterans' Appeals, Department of Veterans Affairs
Reginald	Harris	US EPA Region 3
Rita	Harris	Sierra Club
Jill	Harrison	University of Colorado-Boulder
Benjamin	Hawkins	James River Association
Clyde	Henderson	Sandbranch...everybody's community!
Randy	Hill	U.S. EPA
Adrienne	Hollis	WE ACT for Environmental Justice
Erica	Holloman	Southeast CARE Coalition
Mike	Holloway	U. S. Environmental Protection Agency
Pamela	Houston	U.S. EPA
Caitlin	Hudson	GSA
Anton	Hufnagl	German Embassy
Cheryl	Johnson	People for Community Recovery
Herbert	Jones	AARP ADVISORY COMMITTEE - DC
Herbert	Jones	AARP Advisory Group - DC
Ayana	Jones	University of Maryland
Jim	Jones	U.S. EPA

National Environmental Justice Advisory Council October 12-13, 2016 Meeting Attendees		
Julie	Kaplan	DOT
Alix	Kashdan	EPA
Eugene	Keahey	Project DreamHaus: Sandbranch
Cheryl	Kelly	DOI
Sylvia	King	Cornerstone Baptist Church
Marva	King	U.S. EPA
Kim	Lambert	U.S. Fish and Wildlife Service
Rosalyn	LaPier	Saokio Heritage
Katrina	Lashley	Smithsonian ACM
Charles	Lee	U.S. EPA
Sheila	Lewis	U.S. EPA
Macara	Lousberg	EPA
Tai	Lung	EPA Office of Environmental Justice
Diana	Lynch	DHS/ICE
Arsenio	Mataka	California Environmental Protection
Janet	McCabe	U.S. EPA
Mildred	McClain	Citizens for Environmental Justice/Harambee House, Inc.
Claire	McClinton	Flint Democracy Defense League Water Task Force
Mary	McGillicuddy	ASPPH
Terry	McGuire	Earth Justice
Cynthia	McOliver	US EPA
Maryann	Menanno	EPA
Marsha	Minter	U.S. EPA

National Environmental Justice Advisory Council October 12-13, 2016 Meeting Attendees		
Ruben	Mojica-Hernandez	EPA
Richard	Moore	Los Jardines Institute
DeAndra	Morris	ASPPH/EPA Fellow
Jasmin	Muriel	OEJ
Daria	Neal	U.S. DOJ
Amanda	Nesheiwat	Town of Secaucus
Yudith	Nieto	Texas environmental justice advocacy services (t.e.j.a.s)
Chad	Nitsch	U.S. EPA
Pam	Nixon	People Concerned About Chemical Safety/ Ohio Alley Environmental Coalition
Jacqueline	Norris	Prince George's Low Income and Marginalized Community Collaborative
Onyemaechi	Nweke	OEJ
Kevin	Olp	EPA
Sylvia	Orduno	Michigan Welfare Rights Organization
Cynthia	Peurifoy	U. S. Environmental Protection Agency
Mary	Pham	WE ACT for Environmental Justice
Samantha	Phillips Beers	US EPA
Dennis	Randolph	City of Grandview, Missouri
Deldi	Reyes	US EPA Region 9
Cynthia Kim Len	Rezentes	Mohala I Ka Wai
Victoria	Robinson	U.S. Environmental Protection Agency
Jim	Rollins	Policy Navigation Group
Angie	Rosser	West Virginia Rivers Coalition

National Environmental Justice Advisory Council October 12-13, 2016 Meeting Attendees		
Suzi	Ruhl	US EPA OEJ
MaKara	Rumley	U.S. EPA
Deidre	Sanders	Pacific Gas & Electric Company
Bhavna	Shamasunder	Occidental College, Urban and Environmental Policy Dept
Mike	Shapiro	United States Environmental Protection Agency
Samantha	Shattuck	Pegasus Technical Services
Paul	Shoemaker	Boston Public Health Commission
DeAndre	Singletary	US EPA
David	Smith	US Environmental Protection Agency (EPA)
Sarah	Solomon	EPA
Joanna	Stancil	US Forest Service
Mathy	Stanislaus	U.S. EPA
Richard	Starr	American Chemistry Council
Laura	Stewart	U.S. Environmental Protection Agency
Horace	Strand	NEJAC
Alexis	Strauss	U S E P A
Kerene	Tayloe	WE ACT for Environmental Justice
Steven	Taylor	Campaign for Healthier Solutions, and Coming Clean
Matthew	Tejada	U.S. EPA
Elise	Tolbert	ASPPH Fellow at EPA
Tamara	Toles O'Laughlin	DOEE
Anthony	Torres	EPA Climate Justice Working Group / SustainUS / Sierra Club
Javier	Torres	COCEF

National Environmental Justice Advisory Council October 12-13, 2016 Meeting Attendees		
Arthur A	Totten	USEPA
Hermila 'Mily'	Trevino-Sauceda	Alianza Nacional de Campesinas
Frederick	Tutman	Patuxent Riverkeeper
Eriqah	Vincent	National Wildlife Federation
Alice	Walker	US EPA
Simone	Walter	EPA - OEJ
Carmel	Walters	USDA
Phillip	Washington	USDA
Ronald	White	Union of Concerned Scientists
Carey Catherine	Whitehead	Council on Environmental Quality
Shanika	Whitehurst	US EPA
Sacoby	Wilson	Community Engagement Environmental Justice and Health Initiative
Jill	Witkowski Heaps	Choose Clean Water Coalition
Alice	Wright	Chester Environmental Partnership
Beverly	Wright	Deep South Center for Environmental Justice
Kelly	Wright	Shoshone-Bannock Tribes
Valerie	Zartarian	USEPA

National Environmental Advisory Council October 12-13, 2016 Teleconference Attendees		
First Name	**Last Name**	**Company**
Paul	Amato	US EPA
Colin	Bailey	The Environmental Justice Coalition for Water
Rachelle	Begay	UA Center for Indigenous Environmental Health Research
Paola	Betchart	Worker Justice Center of NY
Hans	Bjornson	FAA
Ariadinny	Braz	
Anna	Burhop	ACC
Pam	Buster	EPA
Pam	Buster	EPA
Maya	Carrasquillo	University of South Florida
Kendyl	Crawford	VA Sierra Club
Pauline	De Vose	US Environmental Protection Agency
Lisa	DeVille	Fort Bertold P.O.W.E.R
Michael	Elam	Barnes & Thornburg
Nicolette	Fertakis	EPA
Tamara	Freeman	EPA
Desean	Garnett	U.S. EPA
Sally	Gellert	various grassroots groups
Melake	Getabecha	Groundwork Denver / NEJAC Youth Climate Justice Workgroup
Vern	Goehring	Natural Solutions for Advocacy (FWW)
Daniel	Goldstein	ERM
Jose Omar	Gomez	Council of Mexican Federations
Sergio	Gonzalez-Solis	EPA OCFO-OPAA
Kenya	Goodson	Na
Sarah	Goodspeed	Center for Earth, Energy and Democracy
Bernadette	Grafton	EPA Office of Brownfields and Land Revitalization
Running	Grass	US EPA Region 10
Beth	Graves	ECOS
John	Gubbings	Unitarian Universalists for social justice
Adra	Hallford	City of Texarkana, Texas
Emily	Heller	EPA
Daniella	Henry	NYC Mayor's Office Resiliency
Lacey	Hirschvogel	Missouri DNR
Brian	Holtzclaw	U.S. EPA Region 4 - RCRD - Community Engagement Program
Mary	Irizarry	Environmental Justice NWI

Ellis	Jacobs	Advocates for Basic Legal Equality
Ashley	Jones	EPA
Rodolfo	Juan	USEPA
Shaheerah	Kelly	U. S. Environmental Protection Agency, Region 9
Toshia	King	US EPA/OLEM/ORCR
Joyce	Klein-Rosenthal	Columbia University
Yogin	Kothari	Union of Concerned Scientists
Elizabeth	Kramer	U.S. EPA, Region 7
Ashley	Kung	FL DEP
Rebecca	Landy	US Human Rights Network
Terry	Lansdell	Clean Air Carolina
Katie	Lautar	Baltimore Green Space
Michel	Lee	Council on Intelligent Energy & Conservation Policy
Jerrie	Magruder	U S department of Housing and Urban Development
Susan	Manes	Michael Baker International
Melissa er	McGee-Collier	MDEQ
Cynthia	McOliver	US EPA
Jasmin	Muriel	EPA
Kim	Noble	Green for All
Mary Cate	Opila	EPA, Region 3
Roman	Partida-Lopez	Center for Sustainable Energy
Preston	Peck	Toxic Free NC
Morgan	Pennington	Intern at WE ACT for Environmental Justice
Millie	Piazza	WA Dept. of Ecology
Kelly	Poole	Environmental Council of the States
Deldi	Reyes	U.S. EPA
Tina	Reynolds	Michigan Environmental Council
Sarah	Rice	NCDEQ
Britton	Schwartz	UC Berkeley Law Environmental Law Clinic
Natalia	Shaw	University of Redlands
Gevon	Solomon	EPA Region 1
D J	Stewart Anderson	Impact Detroit
Kathy	Tran	UC Berkeley/NEJAC Youth workgroup
Amber	Vignieri	Elevate Energy
Eriqah	Vincent	National Wildlife Federation
Camille	von Kaenel	E&E News
Carmel	Walters	USDA

APPENDIX B
WRITTEN COMMENTS

National Environmental Justice Advisory Council
U.S. Environmental Protection Agency
Office of Environmental Justice
Mail Code 2201A
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

October 5, 2016

RE: NEJAC Public Face to Face Meeting, Oct. 12-13, 2016; Written Comments of the Southwest Organizing Project

Dear NEJAC Members:

On behalf of the Southwest Organizing Project ("SWOP") please accept the following written comments for your consideration. SWOP is a non-profit environmental and social justice organization based in Albuquerque, New Mexico. SWOP works primarily with low-income communities of color toward community empowerment and equal treatment under existing laws. SWOP's guiding principle is that every community has the right to a healthy and sustainable environment in which to live, work, and play.

SWOP and its members work hand in hand with communities disproportionately impacted by pollution to address both the physical and systemic sources of the pollution. Confronting environmental racism in this context includes organizing for political and social change, litigation, building relevant knowledge and skills within communities, and conducting citizen science.

SWOP's comments focus primarily on the involvement, or lack thereof, of the EPA in addressing disparate air pollution impacts on minority communities in Albuquerque, New Mexico. SWOP's concerns arise primarily from the discriminatory actions of Albuquerque's and Bernalillo County's (where Albuquerque is located) local permitting authorities and EPA' failure to 1) properly supervise these local permitting

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authorities; and 2) effectively address community concerns about the environmental, property, and public health impacts of air pollution.

Albuquerque's local permitting authorities, the Albuquerque Environmental Health Department ("EHD"), formerly known as the Air Quality Division, and the Albuquerque/Bernalillo County Air Quality Control Board ("Air Board") have a long history of discriminatorily permitting air pollution sources in low-income, primarily Latino, communities in Albuquerque and Bernalillo County. EHD and the Air Board furthermore have a long history of prohibiting and discouraging these same communities from meaningfully participating in permitting proceedings.

Because of the local permitting authorities' long history of discriminatory action, SWOP filed a complaint with EPA's Office of Civil Rights ("OCR") under Title VI of the 1964 Civil Rights Act. *Southwest Organizing Project v. Albuquerque Air Quality Division and Albuquerque/Bernalillo County Air Quality Control Board*, EPA File No. 13R-14-R6. OCR accepted SWOP's complaint for investigation and SWOP is encouraged that OCR is taking steps to resolve SWOP's complaint.

However, given OCR's unfortunate history handling Title VI investigations (*see, e.g., Californians for Renewable Energy, et. al. v. California Air Resources Board, et.al.*, EPA File No. 02R-00-R9), SWOP has reservations about whether affected communities will be able to give meaningful input into the investigation. SWOP therefore urges NEJAC to advise EPA OCR that if the complainant and recipient are unable to resolve their dispute informally, OCR's investigation, as well as any settlement with EHD and the Board, should include meaningful public input. In many cases, including SWOP's, the complainant and impacted communities have knowledge and information that would be invaluable to OCR's investigations. SWOP remains optimistic that with NEJAC's guidance, OCR's investigation will be fair and thorough.

Unfortunately, SWOP does not share the same optimism with respect to the air program at Region 6. When SWOP and members of impacted communities have contacted Region 6's air program seeking additional air quality monitoring in their communities, monitoring of air toxics, assistance with identifying air toxics hotspots within Bernalillo County, or assistance with identifying funding for community driven air and health monitoring projects, their requests were belittled and the communities were further marginalized. It is particularly troubling when this program begins a conversation with community members about data the community has gathered by stating that the air program does not trust those data, primarily because they are community generated.

Indeed, given the scope of community health concerns in Albuquerque, the Region 6 air program's interactions with community members can be charitably characterized as unresponsive and probably more accurately characterized as patronizing. For example, community members living in neighborhoods heavily impacted by air pollution presented the Region 6 air program with evidence that air pollution was likely contributing to adverse health outcomes in impacted communities or, at a minimum, that additional investigation was warranted. *See*, Athas, William, *Bernalillo County Cancer Health Disparities: An Analysis of Incidence and Mortality by Race/Ethnicity and Poverty* (2010),[1] attached as Attachment A; Joint Center for Political and Economic Studies, *Place Matters for Health in Bernalillo County: Ensuring Opportunities for Good Health for All, a Report on Health Inequities in Bernalillo County, New Mexico* (2012), attached as Attachment B; South Valley Partners for Environmental Justice, *Air Quality Assessment in the South Valley*, Powerpoint Presentation (2007), attached as Attachment C. Instead of treating the communities' concerns seriously, the Region 6 air program refused to entertain any further air monitoring and advised community members to stop smoking and use environmentally friendly cleaning products.

SWOP urges the NEJAC to advise the Region 6 air program that all community concerns should be taken seriously and that staff should meaningfully engage with community members to resolve those concerns. SWOP urges the NEJAC to recommend that the Region 6 air program create a framework for implementing existing EPA environmental justice guidance, with substantial and meaningful community input, within the next 12 months. Additionally, SWOP urges the NEJAC to recommend that the Region 6 air program increase technical and financial resources available to communities of color to address environmental justice concerns.

Thank you for your consideration of these matters and please do not hesitate to contact me if you have any questions or need further information.

Sincerely,

Eric Jantz
Staff Attorney

[1] This report was prepared for the now defunct Bernalillo County Office of Environmental Health, which was a different agency than the Albuquerque Environmental Health Department.

Bernalillo County

Cancer Health Disparities:
An Analysis of Incidence and Mortality by Race/Ethnicity and Poverty

Prepared by William F. Athas Ph.D., Consultant
for the Bernalillo County Office of Environmental Health
Albuquerque, NM
September 30, 2010

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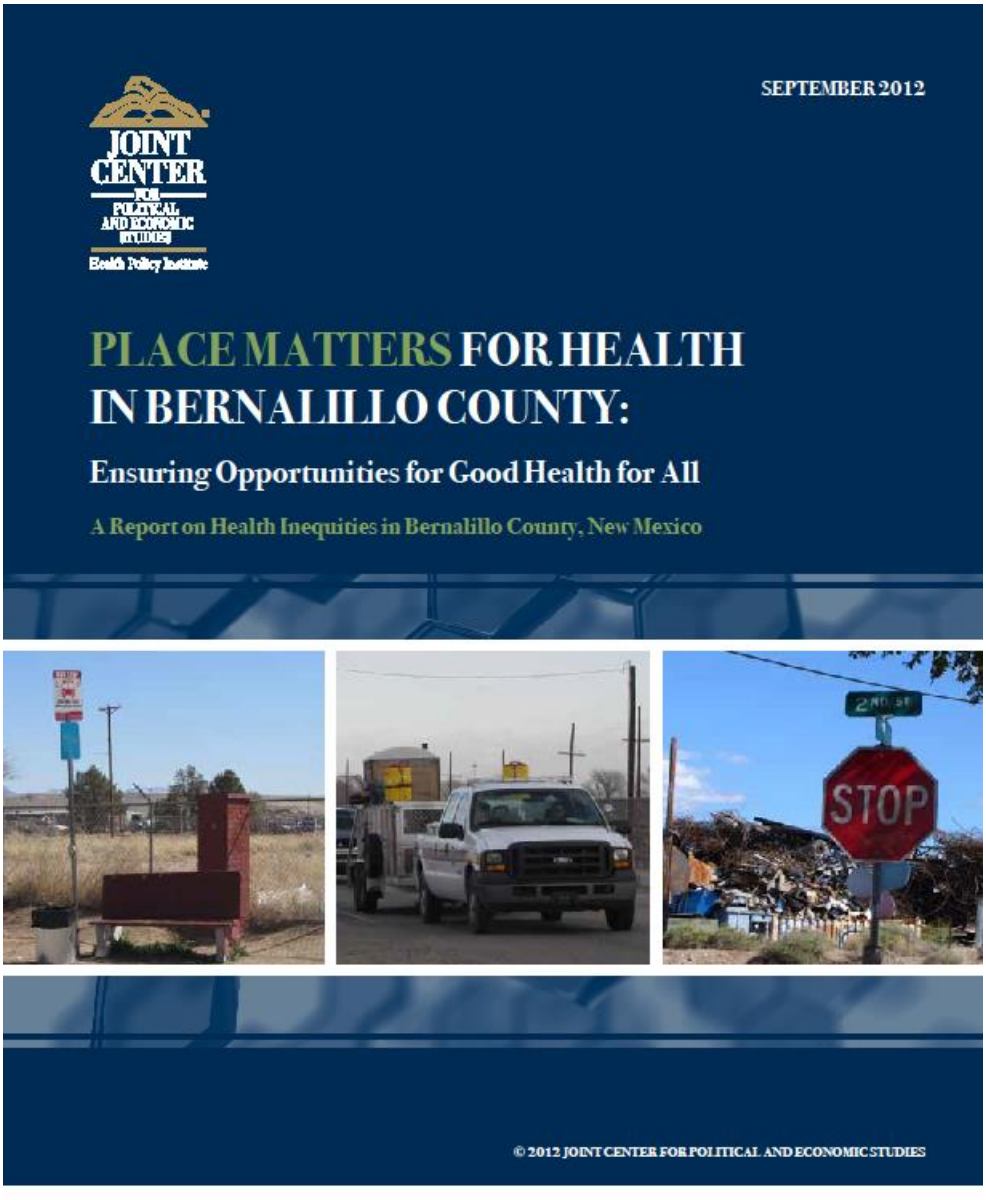

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October 5, 2015

COMMENTS OF THE COUNCIL ON INTELLIGENT ENERGY & CONSERVATION POLICY (CIECP), PROMOTING HEALTH AND SUSTAINABLE ENERGY (PHASE) AND INDIAN POINT SAFE ENERGY COALITION (IPSEC) TO THE NATIONAL ENVIRONMENTAL JUSTICE ADVISORY COUNCIL (NEJAC)

RE: The Urgent Need to Incorporate Environmental Justice Principles into Nuclear Power and Fossil Fuel Regulatory Schemes

Via email: Environmental Protection Agency
Attn: Karen L. Martin martin.karenl@epa.gov

Dear NEJAC:

Preliminary Statement

This Preliminary Statement represents an entreaty from our groups, which, together, represent a broad coalition of concerned private citizens and public policy, public health, civic and environmental groups. We have become increasingly concerned over the devastation the full nuclear and fossil fuel processes impose on environmental justice communities, as well as on other vulnerable US population groups like women and children.

For these reasons, we urge your Council to use its influence and authority to inspire the Environmental Protection Agency (EPA) to improve protection of these vulnerable communities.

We further urge the NEJAC to advise the EPA to substantially strengthen protection of the most vulnerable. This involves incorporation of advancing medical knowledge into standards, and a departure from the unjust scheme of combining, then averaging out risks. Notably, the elevated risks to minority groups and subpopulations appears to be all but ignored in regulation of industrial radioactivity. Women, adolescents, children (especially girls), babies and babies developing in utero have recognized heightened vulnerability to the effects of radiation.

The EPA must also take into consideration real world conditions with respect to radiation releases and water protection standards. A “safety margin” needs to be built into the regulations to accommodate the reality of other forms of unavoidable or medically necessary radiation exposure as well as the inevitable continuing unplanned releases of radionuclides and other contaminants from mining, milling, nuclear power generation and nuclear waste holding and disposition sites. A “safety margin” must also be included in regulation of fossil fuel-related activities.

We hope your Council will facilitate greater EPA attention to the risks of energy-related contamination of the nation’s precious source and ground waters.

Introduction

We wish to respect the time of NEJAC members reviewing these Comments. Thus, rather than integrate research data into a long narrative, we will lay out a few points which we believe warrant careful consideration. The References section provides an illustrative sampling of material supporting these contentions.

POINT 1. The Costs of Industry Need to Be Assumed *By* Industry: Externalization of Public Health and Environmental Costs is Unethical and Unjust

All Americans have the right to live with dignity. All Americans share the right to a natural environment that is clean and safe.

Thanks to advancements in technology, our generation has a genuine opportunity to bequeath to the next an energy system that eliminates waste and harvests the abundant power of the sun, the wind, the tides and waves, biogas, the natural subterranean heat of the earth, and other renewables.

We have the chance to change course from reliance on an energy system that exploits economic desperation and sacrifices the health of low income communities to a system which enables prosperity and wellbeing for all of our nation's citizens.

That is not going to happen if we keep using dirty, dangerous, and extractive forms of energy. It is not going to happen in a world choked by pollution. It is not going to happen with radiation, mercury and countless other toxins draining into our rivers, lakes, streams, and groundwater. It is not going to happen if resource depletion and contamination pulls communities into spirals of conflict and despair. And it will not happen if entrenched industry interests continue to be given license to externalize their massive environmental and public health costs.

Federal regulatory actions have enabled nuclear power and fossil fuel interests to impose enormous costs upon site communities which have little to no recourse to self-protection. It is beyond cavil that Native American, African American, Hispanic and impoverished communities have born – and continue to bear – a disproportionate share of the pollutant burden.

We urge the NEJAC to press the EPA to change to a cost benefit calculus model that incorporates – and transparently delineates – the full scope of potential cost and risks of the full nuclear power and fossil fuel cycles.

POINT 2. Continuing Activity Which Imposes an Extreme and Disproportionate Burden Upon Native American and Other Environmental Justice Communities is Unconscionable

Decades of uranium mining and milling activities on or in close proximity to American tribal lands have already left a legacy of radioactive contaminants that will endure for generations.

Native American, Hispanic American, African American, and poor communities further shoulder a grossly disproportionate share of the burden imposed by hazardous waste.

The articles in the References section of these Comments provide a sobering account of the damage uranium mining and milling activities have wrought.

Simply put: enough is enough.

POINT 3. EPA Regulations Must Focus on Those Most Vulnerable to Radiation and Take All Exposure into Account

Rates of childhood cancers and neurodevelopmental disorders have been rising, as has incidence of autoimmune disease. Radiation is among the agents repeatedly linked to such disorders. We can debate the fine points of which toxin does what and with what synergistic effects for the rest of the century. But in the meantime, our children are sick.

We are creating an ecosystem awash in toxins.

And we need to stop.

Radiation is a known carcinogen and a known neurotoxin. Uniquely among the poisonous stew we are spewing, radioactive isotopes emitted from every single stage of the nuclear power fuel cycle will remain lethal and dangerous for many centuries to come. Thus – even ignoring all the additional radiation exposures from accidents and leaks – the so-called "low-levels" of radiation will accumulate and long-lived isotopes will remain cycling in and out of biological organisms and the biosphere for tens of thousands of years.

How many generations of children do we want to put at risk?

These are the genuine moral and ethical considerations that need to be factored into an updating of the health and environmental protection standards for radiation exposure. The EPA should also consider *all* radiation emission generators and pathways, since this is what is relevant to human health.

The current health crisis plaguing Native American populations is well recognized. Regardless of the contribution made by uranium mining activities to date, ongoing and future uranium and thorium mining and milling activities (as well as natural terrestrial radon emissions) on or near Native American Reservations will unquestionably present medical risk to an *already* vulnerable group. This reality must be taken into the calculus.

The EPA must expand the protection of all demonstrably vulnerable groups. This includes: prenatal and neonatal babies; young children; girls; adolescents; women; African American women; and people with radiosensitivity (which includes the infirm). A vast and growing body of scientific knowledge demonstrates that these groups are disproportionately vulnerable to the effects of radiation, not to mention other environmental pollutants.

Allostatic load – the physiological and psychological consequences of chronic exposure to repeated and chronic stress – is now widely recognized as an independent variable which can result in added vulnerability of minority, indigenous, and poverty-stricken communities. Current EPA regulations fail to take the excess vulnerability of individuals already burdened by severe allostatic loads into account. While it may not be precisely quantified, a "margin of error" should be incorporated into regulations to compensate for the allostatic load factor.

The EPA must also expand protection to include non-cancer health risks. Seeing cancer and other illness as merely the consequence of DNA damage and mutations is an extremely obsolete view. Current science shows that complex cellular interactions and mechanisms, including endothelial dysfunction, inflammation, mitochondrial dysfunction and oxidative stress clearly play a relevant role

in radiation-induced negative health consequences. The induction of heritable disease is another unaccounted risk.

It is an astonishing fact that the U.S. government has not sponsored a single significant population based general health study of communities exposed to chronic low-level nuclear industry radioactivity emissions. We hope the NEJAC may prevail upon the Agency to remedy this regulatory deficiency.

POINT 4. EPA Regulations Must Take Climate Change into Account – Global Warming Dramatically Exacerbates Environmental Vulnerabilities

Mining activity, energy production, land use, agriculture, the ecosystem, and water resources are linked in extraordinarily complex ways. And problems in one area will ripple across multiple sectors.

The EPA scheme utterly fails to take into account the extraordinary longevity of the radioactive stew produced by the industry throughout its full fuel cycle. Some of these dangerous radionuclides will remain in rivers, lakes, streams, and aquifers for centuries (in some cases, millennia).

The risk is compounded by climate change and the increasing stresses of extreme weather, factors also disregarded by EPA radiation protection guidelines.

Flooding events, for example, will increasingly transport contaminants held or spilled onsite into offsite waters. While water contamination events can severely negatively affect all citizens, regardless of economic condition, such events are even more traumatic for families with no realistic ability to relocate. The water crisis in Flint, Michigan serves as a shameful case study of this reality.

Drought conditions will render areas already experiencing water stress in peril. Native American and other environmental justice communities in the West and Southwest will thus be increasing burdened by the combined effects of radioactive water pollution and water depletion.

Moreover, the EPA scheme neglects to adequately address the massive source water intake and thermal pollution output of nuclear reactors. Thermal plumes, of course, are of particular concern in a warming world. This is bad for the nation, but the most near-term and harsh impacts will fall upon indigenous and other environmental justice communities reliant on healthy aquatic ecosystems for food (fishing and crop irrigation) and potable water.

Groundwater is of particular concern since it serves as the water source of last resort for drinking and agricultural use and can take centuries to replenish. Thus it is imperative the EPA consider *all* potential sources of water in its rulemaking.

Conclusion

By consideration of the full effects of radiation produced during the full fuel cycles of nuclear power and fossil fuels, the EPA could redirect the course of environmental policy in a way that will invigorate our economy today and keep all people of this great nation safe, clean and prosperous for generations to come.

During 20th Century, our nation despoiled the environment and sacrificed the wellbeing of untold numbers of vulnerable and impoverished communities throughout the nation. The argument was made that acceptance of contamination was a "necessary evil" with respect to activities for which there were no viable alternative.

However dramatic and rapidly evolving developments in 21st Century energy provision, distribution and use (*e.g.*, renewable power generation, transmission, demand-side management, and efficiency technologies) utterly eradicate this argument with respect to both nuclear power and fossil fuels. There are available, cheaper, cleaner, safer alternatives, which are far less toxic.

It only takes the will.

Respectfully submitted,

Council on Intelligent Energy & Conservation Policy
Promoting Health and Sustainable Energy
Indian Point Safe Energy Coalition

RESOURCES

{NOTE: References & sources listed alphabetically by lead author or – if no listed author – by institution or major publication. Internal footnote references are excluded. Bracketed synopses of specific points and specific quotes following citations have been the added for the purpose of advocacy and to support points of core emphasis in the Comments. They are not intended to be summaries.}

African American Environmentalist Association, Environmental Justice Claims Rejected for New Nuke in Mississippi, AAEA News, Aug 2004. http://www.aaenvironment.com/News1.htm.

[The Nuclear Regulatory Commission's (NRC) Atomic Safety Licensing Board denied a request by the Sierra Club, Public Citizen, Nuclear Information & Resource Service (NIRS), and the Clairborne County NAACP to participate in a licensing hearing on Entergy's application to site a new nuclear reactor at its existing Grand Gulf site. The licensing board denied all the groups' environmental justice contentions. Clairborne County is 84% African American with 32% of residents living at or below the poverty line.]

Adams N, A review of Yellow Dirt: A Poisoned Land and the Betrayal of the Navajos, Applied Nursing Research (2015); 28 (2): 114-115. Abstract. http://www.appliednursingresearch.org/article/S0897-1897(14)00113-X/abstract

[Author, a nurse affiliated with the University of Mexico, reviews the book "Yellow Dirt" by Judy Pasternak, emphasizing that knowledge of the impact of uranium mining on the environment and health of the Navajo people is something all nurses treating this population needs to be aware of and incorporate into their health care practice.]

Almond D, Edlund L and Palme M, Chernobyl's Subclinical Legacy: Prenatal Exposure to Radioactive Fallout and School Outcomes in Sweden, Quarterly Journal of Economics (2009); 124: 1729-1772. http://qje.oxfordjournals.org/content/124/4/1729.short.

[Authors, economists with Columbia University (US) and Stockholm University (Sweden), investigated a large cohort of children in Sweden and documented cognitive damage to a population not believed to be at risk.

The ideal study of the effects of low dose radiation would assign doses randomly and involve a large sample size, an approach not feasible for ethical or practical reasons. The April 1986 Chernobyl nuclear plant accident, however, provided a nearly ideal natural experiment in low level radiation exposure. In Sweden, there was substantial geographic variation in deposition due primarily to differences in rainfall. The nation also maintains a comprehensive data set on births and educational qualification. These features enabled the researchers to make comparisons within cohorts and assess whether regional radioactivity exposure variation affected cognitive performance.

Logistical analysis of a comprehensive data set of 562,637 Swedish children born between 1983-1988 shows that the cohort in utero during the Chernobyl accident had worse school outcomes than adjacent birth cohorts. The results were robust to family fixed effects. The pattern which emerged showed that children exposed prenatally had worse outcomes than their siblings.

Students born in regions in Sweden that received more fallout suffered greater damage. Students from the 8 most affected municipalities had lower grade point averages and were several percentage points less likely to qualify for high school. Levels of deficit corresponded with levels of exposure magnitude, but deficits registered in areas which the International Atomic Energy Agency (IAEA) and the UN Development Program had deemed to not pose a health risk.

Most notably, deterioration was largest for those exposed approximately 8-25 weeks post conception, a crucial brain development period.

(Authors note these findings are consistent with atomic bomb studies finding IQ reduction and school performance records of Japanese children exposed to radiation in utero.)

Authors conclude the findings suggest that fetal exposure to ionizing radiation damages cognitive ability at radiation levels previously considered safe.]

American Cancer Society: Radon: What is Radon? Accessed from web Jul 28, 2014. http://www.cancer.org/cancer/cancercauses/othercarcinogens/pollution/radon.

[Radon is a colorless, odorless, radioactive gas which forms naturally from the decay of radioactive elements, such as uranium. Radon gas from soil and rock in the ground can move into the air and into groundwater and surface water.

Radon decays into solid radioactive elements; and such radon progeny (eg, polonium-218, polonium-214, lead-214) can attach to dust and other particles and be inhaled into the lungs. As radon and radon progeny in the air break down, they give off high-energy radioactive alpha particles that can damage DNA inside the body's cells. According to the EPA, the average indoor radon level is about 1.3 picocuries per liter (pCi/L). People should take action to lower radon levels in the home if the level is 4.0 pCi/L or higher. The EPA estimates that nearly 1 out of every 15 homes in the United States may have elevated radon levels.

Scientists estimate radon exposure causes as many as 22,000 deaths in the US annually.]

Arnold C, Once Upon a Mine, Environmental Health Perspectives (2014); 122 (2): A44-A49. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3915248/.

Averbeck D, Non-targeted effects as a paradigm breaking evidence, Mutation Research/Fundamental and Molecular Mechanisms of Mutagenesis (2010); 687 (1-2): 7-12. Abstract. http://www.sciencedirect.com/science/article/pii/S0027510710000266.

[Researcher from Institut Curie-Section de Recherche, Centre Universitaire (France) questions the scientific validity of the linear no-threshold concept for low-dose radiation exposures.

Modern science has shown that cells and tissues and whole organisms react in complex ways following biologic insult.

The classical paradigm of radiobiology was based on the concept that all radiation effects on living matter are due to the direct action of radiation. But the discovery of non-targeted and delayed radiation effects challenges this concept, and indicates a new paradigm may need to be developed to provide protection against low radiation doses.

Recurrent themes of recent findings are: the low-dose radiation-induced bystander effect; genomic instability; radiation hypersensitivity; hormesis; and radioadaptive and transgenerational responses. “Most of these phenomena include (1) intra- and intercellular signaling, involving reactive oxygen species (ROS). This signaling may be transient or persistent, and may involve the release of cytokines (bystander effect, genomic instability) or epigenetic changes (translesional responses), (2) a large variability of responses depending on the type of radiation, genotype (DNA repair capacity) and physiological state of the cells and tissues. Many more parameters are involved in responses at low doses than at high doses, and different pathways are activated.” At low doses, non-linear responses have been shown to occur which cannot be accounted for using the linear no-threshold concept.]

Azzam EI, Jay-Gerin J-P, and Pain D, Ionizing radiation-induced metabolic oxidative stress and prolonged cell injury, Cancer Letters (2012); 327 (1-2): 48-60. Abstract. http://www.sciencedirect.com/science/article/pii/S0304383511007592.

[Authors are faculty members of the UMDNJ – New Jersey Medical School and the Sciences de la Santé, Université de Sherbrooke (Canada).

Cellular exposure to ionizing radiation can result in the immediate alteration of atomic structure and cause DNA damage. However radiation exposure can also be an oxidizing event leading to persisting biologic processes. Oxidative damage may spread from targeted to non-targeted bystander cells through redox-modulated intercellular communication mechanisms. “To cope with the induced stress and the changes in the redox environment, organisms elicit transient responses at the molecular, cellular and tissue levels to counteract toxic effects of radiation.”

Specifically, during and shortly following exposure to radiation, metabolic pathways are induced which may or may not adequately cope with the stress. “When the harmful effects exceed those of homeostatic biochemical processes, induced biological changes persist and may be propagated to progeny cells.” Physiological levels of reactive oxygen (RO) and nitrogen species (NS) play critical roles in many cellular functions. In cells exposed to radiation, levels of these reactive species may increase due to perturbations in oxidative metabolism and chronic inflammatory responses, thereby contributing to the long-term effects of radiation exposure on genomic stability.

Notably, delayed biologic outcomes can emerge from isotope impact on mitochondrial DNA and mitochondrial protein import. “Defects in mitochondrial functions lead to accelerated aging and numerous pathological conditions.”]

Biro FM and Deardorff JD, Identifying Opportunities for Cancer Prevention During Preadolescence and Adolescence, Journal of Adolescent Health (2013); 52 (5): S15-S20. http://www.jahonline.org/article/S1054-139X(12)00414-4/fulltext.

[“Early life exposures during times of rapid growth and development are recognized increasingly to impact later life.” Epidemiologic studies document an association between exposures at critical windows of susceptibility. There is increasing awareness that early life events may shape developmental trajectories and impact later health. Breast cancer, for example, is believed to be linked to events during the early stages of life. This includes puberty.

“Puberty represents an important developmental window of vulnerability to environmental exposures.” It is a time of rapid and profound change. In girls, “there is rapid expansion and differentiation of breast stem cells…which occurs contemporaneously with reactivation of the hypothalamic-pituitary-ovarian axis, the onset of pubertal growth spurt, and the time of maximal accrual of bone mineral content.”]

Braverman ER, Blum K, Loeffke B, Baker R, Kreuk F, Yang SP, and Hurley JR, Managing Terrorism or Accidental Nuclear Errors, Preparing for Iodine-131 Emergencies: A Comprehensive Review, International Journal of Environmental Research and Public Health (2014): 11: 4158-4200. http://www.mdpi.com/1660-4601/11/4/4158/htm.

[Article by scientists from the College of Medicine, University of Florida and McKnight Brain Institute; the PATH Foundation; Weill-Cornell Medical college; Texas Tech University; and the National University Hospital of Singapore.

The nuclear reactor incidents at Fukushima, Chernobyl and Three Mile Island “provide a sense of urgency and concern over the possible hazards of ionizing radiation to the thyroid from ^{131}I.” (p 4159) “Young children and developing fetuses are particularly vulnerable.” (p 4184) The neonatal thyroid

starts to concentrate iodine at about 12 weeks gestation. Due to its small size radiation doses to babies in utero are much higher than in children or adults. "Gaseous molecular iodine and gaseous particulate iodine are completely absorbed through the respiratory and upper digestive tract and occurs rapidly." (p 4170) The I-131 isotope is then transported in the bloodstream to the thyroid, where it concentrates. I-131 emits beta rays which have both mass and a negative electrical charge, they interact with surrounding tissue and transfer all of their energy within 1-2mm, potentially causing cellular damage or mutation.

Small doses increase thyroid cancer risk. Large radiation doses can destroy the neonate thyroid. (p 4178) Large quantities of radioactive iodine (I-131), can be released during the course of a nuclear accident. Actual events have shown that the plume of radioactivity can travel over 300 miles. Fukushima showed that the radioactive plume was able to migrate up to 50 miles daily.]

Brugge D and Buchner V, Health effects of uranium: new research findings, Reviews on Environmental Health (2011); 26 (4): 231–249. http://www.degruyter.com/view/j/reveh.2011.26.issue-4/reveh.2011.032/reveh.2011.032.xml.

[Authors from the Department of Public Health and Family Medicine at Tufts University School of Medicine and the Weizmann Institute of Science (Israel) present a review of the health effects of uranium mining, with an emphasis on newer findings (2005–2011). "Uranium mining can contaminate air, water, and soil. The chemical toxicity of the metal constitutes the primary environmental health hazard, with the radioactivity of uranium a secondary concern. The update of the toxicologic evidence on uranium adds to the established findings regarding nephrotoxicity, genotoxicity, and developmental defects. Additional novel toxicologic findings, including some at the molecular level, are now emerging that raise the biological plausibility of adverse effects on the brain, on reproduction, including estrogenic effects, on gene expression, and on uranium metabolism."

Most epidemiology on uranium mining has focused on mine workers and radon exposure. An emerging literature has begun to investigate environmental exposure in residential areas near uranium mining and processing facilities and more epidemiologic research is clearly needed.

"As much damage is irreversible, and possibly cumulative, present efforts must be vigorous to limit environmental uranium contamination and exposure."]

Brugge D, deLemos J, and Bui C, The Sequoyah Corporation Fuels Release and the Church Rock Spill: Unpublicized Nuclear Releases in American Indian Communities, American Journal of Public Health (2007); 97 (9): 1595-1600. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1963288/.

[Authors are from the Department of Public Health and Family Medicine at Tufts University School of Medicine; the Department of Civil and Environmental Engineering at Tufts University School of Engineering; and the Massachusetts College of Pharmacy.

Authors examined two large accidental releases of uranium. One release occurred on January 4, 1986, at Kerr McGee's Sequoyah Fuels Corporation in Oklahoma, located near a major interstate highway (I-40), at the confluence of the Illinois and Arkansas Rivers and upstream from a reservoir within the jurisdiction of the Cherokee Nation. The other release was from United Nuclear

Corporation's Church Rock uranium mine and mill in New Mexico, located near the Puerco River, and nearly entirely on Navajo land, but also near Gallup, NM, which has a large Hispanic population.

Authors emphasize the dearth of health studies of the low-income and Native American communities exposed and urge exploration into the reasons for such inattention. Authors also state: "More attention should be given to the early stages of the nuclear cycle and their impacts on health and the environment."]

Busby C, Aspects of DNA Damage from Internal Radionuclides, Chapter 22 of "New Research Directions in DNA Repair," (INTEC, 2013): 598-637. http://dx.doi.org/10.5772/53942. http://www.nuwinfo.se/files/InTech-Aspects_of_dna_damage_from_internal_radionuclides.pdf.

[Chapter authored by Christopher Busby of Jacobs University (Germany) highlighting evidence which shows that ingestion of particulate – i.e., alpha (α) and beta – radionuclides represent a significant hazard to human health, and one not easily or accurately modeled by analogy with external photon radiation gamma (γ) or x rays. The detrimental health effects of Tritium (H-3) and Carbon-14, and fat soluble gases like Krypton-85, in particular have been effectively ignored by risk models.

A key point is that, for certain exposure regimes, "the ionization density at the DNA and the damage to the DNA can be extremely high even though the absorbed dose, as calculated by the current methodology, may be extremely low." (p 610)

Additionally, risk models ignore the increased risk of noncancer diseases which are being imposed upon populations exposed to increasing buildup of radiation in the environment as a result of continual emissions from nuclear power plants, et al. Cancer yield is simply not a proper representation of the effects of radiation exposure.]

Byun H-M and Baccarelli AA, Environmental exposure and mitochondrial epigenetics: study deign and analytical challenges, Human Genetics (2014); 133 (3): 247-257. http://www.ncbi.nlm.nih.gov/pubmed/24402053.

[Review by authors from the Laboratory of Environmental Epigenetics at Harvard School of Public Health of the literature and research challenges relative to epidemiological studies and the need to increase focus on mitochondrial epigenetics.

"The environment plays a critical role in human health and disease." (p 247) Humans are exposed to multiple environmental pollutants at differing intensities and the hazards can be in the air, water, temperature, and food. Environmental pollutants can cause damage at the molecular level in the cell, which can disrupt cellular function, and the list of diseases linked to pollutants is continuously being updated.

One mechanism through which environmental exposures can induce or impact human disease is by triggering increased oxidative stress in cells. This stress can subsequently lead to alterations in DNA molecules.

Genomic DNA damage in the cell nucleus from environmental exposures has been widely studied. But the nucleus is not the only cellular organelle which contains DNA. Mitochondria also have DNA (mDNA). Mitochondria contain multiple copies of their own genome and mitochondria play an

important role in the cellular response to environmental stressors. Notably, mitochondria are particularly sensitive to oxidative stress, with mitochondrial functions often disrupted by increased stress.

There has been insufficient attention paid to the impact upon mitochondrial epigenetics in studying environmental exposures and human disease.]

Calabrese V, Lodi R, Tonon C, D'Agata V, Sapienza M, Scapagnini G, Mangiameli A, Pennisi G, Stella AM, and Butterfield DA., Oxidative stress, mitochondrial dysfunction and cellular stress response in Friedreich's ataxia. Journal of the Neurological Sciences (2005); 233 (1-2): 145-162. Abstract. http://www.ncbi.nlm.nih.gov/pubmed/15896810.

[Significant evidence suggests that the pathogenesis of several neurodegenerative diseases may involve the generation of reactive oxygen species (ROS) and/or reactive nitrogen species (RNS) associated with mitochondrial dysfunction.

Defects in respiratory complex activities, possibly associated with oxidant/antioxidant imbalance, are believed to underlie defects in energy metabolism and induce cellular degeneration. While the precise sequence of events in pathogenesis is uncertain, the impaired intramitochondrial metabolism with increased free iron levels and a defective mitochondrial respiratory chain, associated with increased free radical generation and oxidative damage, may be mechanisms that compromise cell viability.]

Carpenter DO and Bushkin-Bedient S, Exposure to Chemicals and Radiation During Childhood and Risk for Cancer Later in Life, Journal of Adolescent Health (2013); 52 (5): S21-S29. http://www.jahonline.org/article/S1054-139X(13)00088-8/fulltext.

[Review by researchers from the Institute for Health and the Environment, University of Albany, Rensselaer.

Exposures to radiation and carcinogenic chemicals during gestation, childhood, and adolescence have been demonstrated to lead to cancer later in life. Developmental biology is crucial. Cells are rapidly dividing and organ systems are developing during childhood and adolescence, making these periods a time of sensitivity.

Carcinogens may act via mutagenic, nonmutagenic, or epigenetic mechanisms and may also disrupt endocrine systems. A variety of factors affect cancer risk, including individual genetic susceptibility, the inherent qualities of the chemical or radionuclide, magnitude of exposure, and duration of exposure. But age of exposure is one of the most important factors.

“The most vulnerable ages are the fetal and perinatal periods and the first years of life. Exposure to carcinogenic chemicals during fetal development poses a particularly significant risk because organ systems are developing. During this phase, cells are replicating rapidly and if DNA damage occurs, permanent defects may result and lead to cancer later in life. The fetus is completely dependent on the intrauterine environment, which is influenced by maternal health, diet, and chemical and radiation exposures. Many chemicals cross the placenta. Studies conducted between 2005 and 2011 reported the presence of at least 100 to more than 200 chemicals in the umbilical cord blood of 20 newborns.”

(p S22) Of these chemicals, 101 were present in every umbilical cord blood sample tested in one study. Known or suspected carcinogens have been found not only in human cord blood, but also in amniotic fluid and breast milk. (p S22)

Intrauterine and nursing exposures also cause epigenetic changes. Some chemicals persist in the human body of the mother. Reservoirs of elements that deposit in bones and teeth, for example, can be mobilized during pregnancy and lactation.

Puberty and adolescence are also periods of increased vulnerability. “During adolescence, the endocrine, reproductive, neurological, and other systems undergo remarkable development and growth. The developing tissues and functions of these organ systems are particularly sensitive to the effects of carcinogenic and endocrine-disrupting chemicals.” (p S22) Endocrine disruption may predispose an individual to eventual onset of cancer in hormone-sensitive organ systems such as the breast, ovaries, prostate, and testes. Evidence from the atomic bomb studies, for example, showed that relative risk for development of breast cancer was much higher for girls who were prepubescent at the time of the blasts than for women who were older than 40. (p S23)

“The combined effects of accumulating carcinogens, exposure to radiation, and epigenetic changes increase the child’s risk for cancer as an adult.” (p S22) General factors adding to increased lifetime risk for those exposed during early life stages are: (1) Children have a higher respiratory rate, and consume more food and water per pound of body weight, exposing them to relatively greater quantities of pollutants from air, food and water. (2) Children’s immune systems are not fully developed. (3) Children have a greater likelihood of oral exposures because of hand-to-mouth behavior. (4) Children are closer to the floor/ground, and are closer to dust and spills. (5) Children have many years of expected life ahead during which time long-latency cancers can develop.

Authors conclude: “We must find ways to reduce human exposure to carcinogenic chemicals and ionizing radiation. Especially important is finding ways to reduce exposure during gestation, childhood, and adolescence because exposure during these critical periods of development leads to cancers later in life.” (p S28)]

Chauhan V, Howland M, Kutzner B, McNamee JP, Bellier PV, and Wilkins RC, Biological effects of alpha particle radiation exposure on human monocytic cells, International Journal of Hygiene and Environmental Health (2012); 215 (3): 339-344. Abstract. http://www.sciencedirect.com/science/article/pii/S1438463911002100.

[Researchers from the Consumer and Clinical Radiation Protection Bureau of Health Canada observe radon (Rn-222) gas produces decay progeny that emits high energy alpha (α)-particles. Epidemiological studies have shown a link between exposure to Rn-222 and elevated risk of lung cancer.

While the mechanisms underlying such effects are not clearly understood, cytokines are known to play a critical role in inflammation and their dysregulated production often contributes to disease pathogenesis.

This study reports on the use of Bio-plex multiplex technology to investigate modulations of 27 pro-inflammatory cytokines following exposure of human monocytic cells to 1.5 Gy of α-particle radiation.

Cells irradiated with α-particles ranging from 0.27 to 2.14 Gy showed statistically significant, dose-dependent increases in phosphorylated H2A histone family X (γ-H2AX) formation. These data suggest that α-particle radiation causes dysregulation in the production of a number of pro-inflammatory cytokines and results in significant DNA damage.]

Cook BI, Ault TR, and Smerdon JE, Unprecedented 21st century drought risk in the American Southwest and Central Plains, Science Advances (2015); http://advances.sciencemag.org/content/1/1/e1400082.

[Authors are from NASA Goddard Institute for Space Studies; Ocean and Climate Physics, Lamont-Doherty Earth Observatory of Columbia University; and Earth and Atmospheric Sciences, Cornell University.

"In the Southwest and Central Plains of Western North America, climate change is expected to increase drought severity in the coming decades." The long historical record shows extended "megadrought" events which had "profound impacts on regional societies and ecosystems." These megadroughts provide crucial evidence in the paleoclimate record for benchmarking the severity of future drought risks.

Empirical drought reconstruction, moisture metrics, and state-of-the-art general circulation models project significantly drier conditions in the latter half of the 21st century compared to the 20th century and earlier paleoclimatic intervals. Future drought risk will likely exceed even the driest centuries of the Medieval Climate Anomaly (1100–1300 AD).

"Our results point to a remarkably drier future that falls far outside the contemporary experience of natural and human systems in Western North America, conditions that may present a substantial challenge to adaptation. Human populations in this region, and their associated water resources demands, have been increasing rapidly in recent decades, and these trends are expected to continue for years to come. Future droughts will occur in a significantly warmer world with higher temperatures than recent historical events, conditions that are likely to be a major added stress on both natural ecosystems and agriculture. And, perhaps most importantly for adaptation, recent years have witnessed the widespread depletion of nonrenewable groundwater reservoirs, resources that have allowed people to mitigate the impacts of naturally occurring droughts. …Combined with the likelihood of a much drier future and increased demand, the loss of groundwater and higher temperatures will likely exacerbate the impacts of future droughts, presenting a major adaptation challenge for managing ecological and anthropogenic water needs in the region."]

Daitz, Ben, MD, A Doctor's Journal: Navajo Miners Battle a Deadly Legacy of Yellow Dust, New York Times Contributing Column, May 13, 2003. http://www.nytimes.com/2003/05/13/health/a-doctor-s-journal-navajo-miners-battle-a-deadly-legacy-of-yellow-dust.html:http://www.nytimes.com/2003/05/13/health/a-doctor-s-journal-navajo-miners-battle-a-deadly-legacy-of-yellow-dust.html.

[Ben Daitz, a physician and professor at the University of New Mexico School of Medicine describes his visit to a Navajo reservation and a clinic serving Navajo suffering from the ravages of uranium mining:

“The Diné (pronounced dee-NAY) or ‘the People,’ as the Navajo call themselves, have many stories about their origins. One says that as they emerged from the fourth world into the fifth and present world, they were given the choice of two yellow powders. One yellow powder was corn pollen, and that was the one they chose.”

The other was the color of the yellowcake, uranium oxide.

“The Spirits said it had to be left alone. But from the late 1940's through the mid-80's, yellowcake was picked and shoveled and blasted and hauled in open-bed trucks, and then dried in mountainous piles at multiple sites in the American West. The Navajo, whose lands extend over western New Mexico, eastern Arizona and southern Utah, were at the epicenter of the uranium-mining boom, and thousands of Navajos worked in the mines. More than 1,000 abandoned mine shafts remain on Navajo land.

“The consequences are measured today, decades after the mines closed, in continuing health problems and degraded land.

Mitchell Capitan, a former mining technician president of the Crownpoint chapter of the Eastern Navajo Agency, founded Endaum, Eastern Navajo Diné Against Uranium Mining. The group was battling against a plan for uranium mining using a leeching using water from the Westwater Canyon Aquifer under Crownpoint, the sole source of drinking water for the Crownpoint area providing for 15,000 people. Capitan says: "‘People come here from all over these parts, from 50 miles away, to truck this water back to their houses, to drink it, because it's the only pure supply. Their own water is bad -- contaminated….'This uranium impacts on our water, our air and our cultural identity,’" he said. "’We've already had enough uranium.’" At a gathering Mr. Capitan stood under an Endaum banner which said in Navajo and English: "One Mind, One Voice, One Prayer, One People."]

Dempf SJ, Azimzadeh O, Atkinson MJ, and Tapio S, Long-term effects of ionizing radiation on the brain: cause for concern? Radiation & Environmental Physics (2013); 52 (1): 5-16. Abstract: http://link.springer.com/article/10.1007/s00411-012-0436-7#page-1.

[Article by researchers for the German Research Center for Environmental Health, Institute of Radiation Biology and the Munich Technology University propose a mechanistic model for radiation induced neurodegeneration with mitochondria as a key element. The authors note that oxidative stress and neuroinflammation are fundamental players in neurodegenerative diseases.

Such questions are important because the cumulative doses of ionizing radiation to Western populations are accruing and some research groups have found that low-dose exposure affects cognitive skills. Low doses may lead to delayed long term cognitive and other defects – albeit at a lower frequency – than those observed from high doses. “Children may be a particular target group with pronounced sensitivity for the correlation of radiation and neurodegenerative diseases: they have a long-life expectancy allowing radiation-induced effects with a prolonged latency to develop, and they have still an immature brain up to adolescence.”]

DeSantis CE, Fedewa SA, Sauer AG, Dramer JL, Smith RA, and Jemal A, CA (Cancer Journal for clinicians) (2015) http://onlinelibrary.wiley.com/doi/10.3322/caac.21320/full.

[Authors are with the American Cancer Society and Emory University School of Medicine. With the exception of skin cancers, breast cancer is the most common cancer among US women, accounting for nearly 1 in 3 cancer diagnoses. It is the second leading cause of cancer death among women after lung cancer. This article describes trends in breast cancer incidence, mortality, survival, and screening by race/ethnicity in the US as well as state variations in these measures. Data is from the Surveillance, Epidemiology, and End Results (SEER) program of the National Cancer Institute, the North American Association of Central Cancer Registries (NAACR), and the National Center for Health Statistics.

"Although often referred to as a single disease, breast cancer is distinguished by up to 21 distinct histologic subtypes and at least 4 different molecular subtypes, which are associated with distinct risk factors and are biologically variable in presentation, response to treatment, and outcomes." Compared with white women, black women are more likely to have the aggressive HR−/HER2− subtype of the disease known as triple negative breast cancer, which has a poorer prognosis. Triple negative breast cancers account for 22% of the cases among black women (compared with 11% among white women).

African American women are being diagnosed with breast cancer at younger ages and die from the disease at younger ages than white women (whose incidence rates have been stable since 2004). Overall, "the breast cancer death rate is 42% higher in blacks than in whites."]

Evangeliou N, Balkanski Y, Cozic A, Hao WM, Mouillot F, Thonicke K, Paugam R, Zibtsev S, Mousseau TA, Wang R, Poulter B, Petkov A, Yue C, Cadule P, Koffi B, Kaiser JW, and Møller AP, Fire evolution in the radioactive forests of Ukraine and Belarus: future risks for the population and the environment, Ecological Monographs (2015); 85 (1): 49–72. Abstract. http://dx.doi.org/10.1890/14-1227.1

[International team of scientists are from the Institut Pierre et Simon Laplace, Laboratoire des Sciences du Climat et de l'Environnement (LSCE) (France); Missoula Fire Sciences Laboratory, Rocky Mountain Research Station Forest Service (US); Université Paul-Valéry Montpellier (France); Potsdam Institute for Climate Impact Research (PIK) (Germany); King's College London (UK); National University of Life and Environmental Sciences of Ukraine (Ukraine); University of South Carolina (US); Laboratory for Earth Surface Processes, College of Urban and Environmental Sciences, Peking University (China); European Commission, Joint Research Centre, Air and Climate Unit (Italy); European Centre for Medium-range Weather Forecasts (UK); Max-Planck-Institute für Chemie (Germany); and Laboratoire d'Ecologie, Systématique et Evolution (France).

Study analyzes current and future status of Ukraine and Belarus forests contaminated after the Chernobyl 1986 nuclear disaster and the risk of long-lived radiation spread due to forest fires. "Field measurements and modeling simulations confirmed that numerous radioactive contaminants are still present at these sites in extremely large quantities."

Authors' conclusion: "We predict that an expanding flammable area associated with climate change will lead to a high risk of radioactive contamination with characteristic fire peaks in the future."

Using several models, together with remote-sensing data and observations of conditions such as past forest fire activity, the scientific team also looked at how climate change in the forests could impact fire risk. Three scenarios of cesium- 137 (Cs^{137} or ^{137}Cs) displacement over Europe are postulated,

each uses the assumption that 10% of forests were affected by fires. Differences derived on different emission altitudes of Cs^{137}.

"Forests in Eastern Europe are characterized by large, highly fire-prone patches that are conducive to the development of extreme crown fires. Since 1986, there has been a positive correlation between extreme fire events and drought in the two contaminated regions. Litter carbon storage in the area has doubled since 1986 due to increased tree mortality and decreased decomposition rates; dead trees and accumulating litter in turn can provide fuel for wildfires that pose a high risk of redistributing radioactivity in future years. Intense fires in 2002, 2008, and 2010 resulted in the displacement of ^{137}Cs to the south; the cumulative amount of ^{137}Cs re-deposited over Europe was equivalent to 8% of that deposited following the initial Chernobyl disaster. However, a large amount of ^{137}Cs still remains in these forests, which could be remobilized along with a large number of other dangerous, long-lived, refractory radionuclides."

"We predict that an expanding flammable area associated with climate change will lead to a high risk of radioactive contamination with characteristic fire peaks in the future. Current fire-fighting infrastructure in the region is inadequate due to understaffing and lack of funding. Our data yield the first cogent predictions for future fire incidents and provide scientific insights that could inform and spur evidence-based policy decisions concerning highly contaminated regions around the world, such as those of Chernobyl."]

Faeth P, The Impacts of EPA's Clean Power Plan on Electricity Generation and Water Use in Texas, Institute for Public Research at CNA report, Nov 2014. http://www.cna.org/sites/default/files/research/IRM-2014-U-009083.pdf. And Faeth, Paul, In drought-prone Texas, a threat to the energy supply, Dallas Morning News Op-Ed, Dec 20, 2013. http://www.dallasnews.com/opinion/sunday-commentary/20131220-in-drought-prone-texas-a-threat-to-the-energy-supply.ece.

[Author, Paul Faeth, is the Director of Energy, Water and Climate at the Institute for Public Research at CNA, a national not-for-profit research and analysis organization.

The electric power sector is responsible for half of all water use across the US, but how power plants use water varies greatly. Nuclear, coal-fired and natural gas-fired plants are all thermal and require cooling – with water run through the power plants and returned to the surface water. If – as for example in 2011 – too little water is available or the available water is too warm, the plants can't be cooled and cannot operate. "There are numerous examples every year of shutdowns from water problems where there are droughts in the U.S."

Nuclear plants use the most water, followed by coal, then gas plants. Wind and solar photovoltaic power require virtually no water.]

Fairlie I, A hypothesis to explain childhood cancers near nuclear power plants, Journal of Environmental Radioactivity (2014); 133: 10-17. Abstract. http://www.sciencedirect.com/science/article/pii/S0265931X13001811.

[Dr. Ian Fairlie is former head of the Secretariat of the UK Government's CERRIE Committee on internal radiation risks.

Over 60 epidemiological studies world-wide have examined cancer incidences in children near nuclear power plants. Most show leukemia increases. Especially strong is the evidence from the 2008 KiKK study commissioned by the German Government which found relative risks of 1.6 in total cancers and 2.2 in leukemia's among infants living within 5 km of all German nuclear power plants. One hypothesis proposed is that the increased childhood leukemia cancers result from radiation exposures to pregnant women near nuclear power plants.

However any theory has to account for the >10,000 fold discrepancy between official dose estimates from nuclear power plant emissions and observed increased risks.

An explanation may be that doses from spikes in nuclear power plant radionuclide emissions (such as spikes during refueling) are significantly larger than those estimated by official models which are diluted through the use of annual averages. In addition, risks to embryos/fetuses are greater than those to adults and hematopoietic tissues appear more radiosensitive in embryos/fetuses than in newborn babies. Thus an explanation for the cancers may be a product of possible increased doses and possible increased risks per dose.]

Fairlie, Ian, Childhood Leukemias Near Nuclear Power Stations: new article, Dr. Ian Fairlie blog, Jul 25, 2014. http://www.ianfairlie.org/news/childhood-leukemias-near-nuclear-power-stations-new-article/.

[Dr. Ian Fairlie is former head of the Secretariat of the UK Government's CERRIE Committee on internal radiation risks. In this post, Dr. Fairlie summarizes the findings of his study on increased rates of childhood leukemia near nuclear power plants (NPPs) published in the March 2014 edition of the Journal of Environmental Radioactivity.

Some background is necessary to grasp the new report's significance. In 1990 publication of the Gardner report indicated a very large increase (7 fold) in child leukemia near the Sellafield nuclear facility in Cumbria (UK). Worldwide, over 60 epidemiological studies have examined cancer incidences in children near nuclear power plants. Most (>70%) indicate leukemia increases. Fairlie writes: "I can think of no other area of toxicology (eg asbestos, lead, smoking) with so many studies, and with such clear associations as those between NPPs and child leukemias. Yet many nuclear Governments and the nuclear industry refute these findings and continue to resist their implications. It's similar to the situations with cigarette smoking in the 1960s and with man-made global warming nowadays."

The 2008 KiKK study commissioned by the German Government found a 60% increase in total cancers and 120% increase in leukemias among children under 5 yrs old living within 5 km *{~3 mi}* of all German nuclear power plants. As a result, governments in France, Switzerland and the UK hurriedly set up studies near their own plants. All found leukemia increases. However, because the numbers involved were small, they were claimed to lack "statistical significance". This is misleading. "In such situations, what you need to do is combine datasets in a meta-study to get larger numbers and thus reach higher levels of statistical significance. The four governments refrained from doing this because they knew what the answer would be, viz, statistically significant increases near almost all NPPs in the 4 countries." Farlie and his colleague Korblein helped them out by doing it for them (Korblein and Fairlie, 2012), and "sure enough" there were statistically significant increases.

The combined data {*set forth in a table*} reveals a highly statistically significant 37% increase in childhood leukemias within 5 km of almost all nuclear power plants in the UK, Germany, France and Switzerland. “So the matter is now beyond question, ie there’s a very clear association between increased child leukemias and proximity” to nuclear power plants. The only remaining question is the cause.

Any theory involving radiation has a major difficulty to overcome, and that is how to account for the large (~10,000 fold in KiKK) discrepancy between official dose estimates from nuclear power plant emissions and the observed increased risk.

Fairlie postulates that the reasons can be gleaned from KiKK’s principal finding, which is that the increased incidences of infant and child leukemias were closely associated with proximity to the effluent chimneys as well as KiKK’s observation that the increased solid cancers were mostly “embryonal”, ie babies were born either with solid cancers or with pre-cancerous tissues which, after birth, developed into full-blown tumors. This happens with leukemia as well. Cancer increases may thus be due to radiation exposures from emissions to the air. Large annual spikes in emissions may result in increased dose rates to nearby populations. Cancers may arise in utero in pregnant women. Both the doses and their risks to embryos and to fetuses may be greater than current estimates. Finally, pre-natal blood-forming cells in bone marrow may be unusually radiosensitive. Together these factors – discussed in considerable detail in the full 2014 Environmental Radioactivity article – offer a possible explanation for the discrepancy between estimated radiation doses from nuclear power plant releases and the risks observed by the KIKK study.]

Fettus GH and McKinzie MG, Nuclear Fuel’s Dirty Beginnings: Environmental Damage and Public Health Risks From Uranium Mining in the American West, National Resources Defense Council report, Mar 2012. http://www.nrdc.org/nuclear/files/uranium-mining-report.pdf.

Field LA, Love B, Deyarmin B, Hooke JA, Shriver CD, and Ellsworth RE, Identification of differentially expressed genes in breast tumors from African American compared with Caucasian women, Cancer (2012); 118 (5): 1334-1344. Abstract. http://onlinelibrary.wiley.com/doi/10.1002/cncr.26405/abstract;jsessionid=4AC3732B16A34D2EC613C6C6D82FA8F2.f04t04.

[Researchers are from the Windber Research Institute; BioReka, LLC; Walter Reed Army Medical Center; Henry M. Jackson Foundation for the Advancement of Military Medicine.

Breast cancer tumors in African American women have less favorable pathological characteristics and African American women have higher mortality rates than Caucasian women. While socioeconomics may influence prognosis, biological factors appear to contribute to tumor behavior.

Here the researchers found that, despite matching of tumors by pathological characteristics, the molecular profiles of African American women and Caucasian women differed in both invasive tumors and benign breast tissues. The differentially expressed genes (including CRYBB2, PSPHL, and SOS1) identified, are involved in cellular growth and differentiation, invasion, metastasis, and immune response and thus may contribute to the poor outcome in African American women.]

Fischer EM and Knutti R, Anthropogenic contribution to global occurrence of heavy-precipitation and high-temperature extremes, Nature Climate Change (2015); doi: 10.1038/nclimate2617. http://www.nature.com/nclimate/journal/vaop/ncurrent/full/nclimate2617.html.

[Scientists from the Institute for Atmospheric and Climate Science at Zurich University (Switzerland) note that a human contribution to some prominent heat waves and heavy precipitation events has been demonstrated. In this study, they apply a fraction of attributable risk (FAR) framework to quantify the human influence on weather events that have already transpired since the beginning of the industrial age and conclude global warming is increasing the likelihood of weather extremes.

Authors conclude climate change alters the odds of occurrence of extreme temperature and extreme precipitation. Every degree of warming adds to the risk of the most rare and extreme events. For each 2°C of warming, the fraction of precipitation extremes attributable to human influence rises to about 40%. "It is the most rare and extreme events for which the largest fraction is anthropogenic, and that contribution increases nonlinearly with further warming." This nonlinearity is "robust" and "the probability and FAR of 5-day, 15-day or 31-day temperature and precipitation extremes increase even faster with rising temperatures."

"With further warming, the PR {probability ratio} of hot extremes increases nonlinearly to very high levels ... the probability of hot extremes at 2°C is almost double that at 1.5°C and more than five times higher than for present day."

These findings are of particular concern globally in areas with high vulnerability and low adaptive capacities.]

Glickman, Dan and Harris Sherman, Paying for the Forest Fire Next Time, New York Times Op-Ed, Jun 18, 2014. http://www.nytimes.com/2014/06/18/opinion/paying-for-the-forest-fire-next-time.html.

[Dan Glickman was the secretary of the Agriculture Department from 1995 to 2001. Harris Sherman was the under secretary overseeing the Forest Service from 2009 to 2013.

Major fires are ravaging landscapes in California, Arizona, New Mexico and Alaska. Many wildfires have grown in heat, intensity and size in recent years, consuming millions of acres. In recent years, close to 10 million acres annually have been lost to wildland fires (in contrast to less than half that acreage before 2000). The intensity of these fires is sterilizing the soil and leading to extensive post-fire flooding because there is no vegetation left to check rainwater runoff. Forest conditions (including a beetle infestation that has left behind 40 million acres of dead trees) have also left them vulnerable.

Dead trees are fuel for extreme wildfires. The intensity of these fires is sterilizing the soil and leading to extensive post-fire flooding because there is no vegetation left to check rainwater runoff. Megafires have "exploded in number" over the last decade. Shorter and warmer winters followed by hotter and drier summers have significantly extended the fire season. Megafires threaten not only human life and property but wildlife habitat, water supplies and the electric grid.]

Grandjean P and Landrigan PJ, Neurobehavioural effects of developmental toxicity, Lancet (2014); 13 (3): 330-338. http://www.sciencedirect.com/science/article/pii/S1474442213702783.

[Authors Philippe Grandjean and Philip J. Landrigan are with the Department of Environmental Medicine at the University of Southern Denmark (Denmark), Harvard School of Public Health, and the Icahn School of Medicine at Mount Sinai (NY).

Neurodevelopmental disabilities – including autism-spectrum disorder, dyslexia, and ADHD – seem to be increasing in prevalence and subclinical decrements in brain function are even more common. "All of these disabilities can have severe consequences – they diminish quality of life, reduce academic achievement, and disturb behavior, with profound consequences for the welfare and productivity of entire societies." (p 330) Strong evidence exists that industrial chemicals widely disseminated in the environment are important contributors to "a global, silent pandemic of neurodevelopmental toxicity." (p 330)

"The developing human brain is uniquely vulnerable to toxic chemical exposures, and major windows of developmental vulnerability occur in utero and during infancy and early childhood. During these sensitive life stages, chemicals can cause permanent brain injury at low levels of exposure that would have little or no adverse effect in an adult." (p 330)

Researchers like to focus on acute exposures with a clear and immediate association between causative exposure and adverse effects. A recurring theme is that early warnings of subclinical toxicity are ignored or dismissed until decades pass and mounting evidence finally shows neurotoxicity at much lower exposure levels than had previously been believed safe.

We now know the developing human brain is exceptionally sensitive to injury caused by toxic chemicals and early life epigenetic changes can affect subsequent gene expression in the brain. Exposures to neurotoxicants are particularly likely to lead to functional deficits and disease later in life.

The damage is too often untreatable and permanent.

The authors argue for a precautionary approach that emphasizes prevention and does not mandate absolute proof of toxicity. A rational approach is to start to protect children and take into account the very large individual and societal costs that result from failure to act on available documentation to prevent damage to children. "Additionally, the strength of evidence that is needed to constitute 'proof' should be analysed in a societal perspective, so that the implications of ignoring a developmental neurotoxicant and of failing to act on the basis of available data are also taken into account." (p 336)]

Herbert, Bob, Poor, Black and Dumped On, New York Times Op-Ed, Oct 5, 2006. http://www.nytimes.com/2006/10/05/opinion/05herbert.html.

[Wildly disproportionate numbers of the most toxic industrial activities and the most hazardous waste dumps are systematically sited in disadvantaged communities of color. Agencies issue permits and then do little monitoring and enforcement.

"The evidence has been before us for decades that black people, other ethnic minorities and some poor whites have been getting sick and enduring horrible deaths from the filth that they breathe, eat, drink and otherwise ingest from the garbage dumps, landfills, incinerators, toxic waste sites, oil refineries, petrochemical plants and other world-class generators of pollution that have been

deliberately and relentlessly installed in the neighborhoods where they live, work, worship and go to school."]

Interagency Breast Cancer and Environmental Research Coordinating Committee (IBCERCC): Prioritizing Prevention: Breast Cancer and the Environment, Report of the Interagency Breast Cancer and Environmental Research Coordinating Committee (IBCERCC), Feb 2013. Link to full report via: http://www.breastcancerfund.org/media/press-releases/ibcercc-breast-cancer-prevention-report.html.

[The Interagency Breast Cancer and Environmental Research Coordinating Committee (IBCERCC) is a large panel comprised of experts from US federal health agencies and numerous institutions. It was established as a result of Congressional action.

Some 227,000 women and 2,200 men a year in the US will be diagnosed with breast cancer, and 40,000 a year will die from it. (Estimates for 2012.) Breast cancer has a large impact on its victims, their families, their communities, and the health care system at large. Survivors require lifelong medical surveillance and, often, additional treatment for additional treatment-related cancers and side effects. The personal and economic toll is enormous.

However, despite decades of research on diagnosis and treatment, "preventing this cancer is the only way to reduce the human toll of this disease that affects 1 in 8 women in their lifetime." (p 2-1) Most breast cancers occur in people with no genetic history, so environmental factors broadly must play a major role in the etiology of this disease. Yet preventing breast cancer by finding ways to influence environmental causes has not been a priority.

Breast cancer is now known to be not one disease, but many; with differing incidence and mortality patterns by age, gender and race/ethnicity.

Important gene/environment interactions can occur over the course of a lifetime and special attention must be paid to periods of development when the breast may be most susceptible to exposures. Recognized risk factors such as radiation need to be examined in interaction with physical and chemical exposures.

Recent advances in science have helped elucidate previously little understood molecular behaviors. "The molecular and cellular changes that lead to breast cancer can occur early in life and endure across the life span." (p 2-6) Notably, epigenetics has revealed alterations which do not involve changes in DNA sequences.

Importantly, there appear to be "windows of susceptibility" during the life course when specific exposures might have their greatest influence on lifetime breast cancer risk: "The mammary gland undergoes many stages of development (i.e., *in utero*, neonatal, pubertal, sexual maturity, pregnancy, lactation and lactational involution, post-involution) across the life span. These stages are regulated by endogenous physiology (i.e., hormones, growth factors, inflammatory processes, epithelial-stromal interactions, and metabolism originating from within the body) Epidemiologic and experimental animal studies demonstrate differences in mammary cancer risk and sensitivity to potential cancer-producing or cancer-promoting factors at different developmental stages – referred to as 'windows of susceptibility.'" (p 5-1)

Two of these windows are *in utero* and puberty. Thus timing of exposure is critical.

Risk is also a factor of race. African American women are more likely than Caucasian or non-black Hispanic women to be diagnosed with tumors that have more aggressive features and arise before age 40.

The Committee urges federal agencies to develop standards that consider the full scope of evidence from *in vitro*, *in vivo*, *in silica* and epidemiologic studies regarding health risks and safety to the public to the extent possible. It is also important to develop and apply techniques – including biomonitoring – which measure levels and response to mixtures of exposures relevant to breast cancer with precision. Environmental exposures should be regularly monitored and biospecimens should be collected from diverse populations. Attention should be paid to different exposures which can be a concern in susceptible populations. (p 9-3)

The Committee strongly recommends establishing breast cancer prevention as a priority.]

International Physicians for the Prevention of Nuclear War (IPPNW): Health effects of ionizing radiation, German affiliate of International Physicians for the Prevention of Nuclear War (IPPNW) Summary of expert meeting, Ulm, Germany, Oct 19, 2013. (Provisional translation, Mar 2014).
http://www.chernobylcongress.org/fileadmin/user_upload/pdfs/Health_effects_of_ionizing_radiation.pdf.

[Report on October 2013 meeting of physicians and scientists from the fields of radiobiology, epidemiology, statistics and physics in the city of Ulm (the birthplace of Albert Einstein) at the invitation of the German and Swiss affiliates of the International Physicians for the Prevention of Nuclear War (IPPNW). The conclusions of the Ulm experts meeting were:

(1) Even background radiation causes measurable detrimental health effects. “It is therefore misleading to claim that radiation exposure can be considered harmless as long as it falls within the dose range of ‘natural’ background radiation.” (p 2)

(2) The use of radiation for medical diagnostics causes measurable health effects. Certain population groups are particularly radiosensitive, for example, women with a genetic predisposition for breast cancer. “Children and adolescents are at greater risk than adults, while the embryo has the highest vulnerability.” (p 2)

(3) Nuclear activities cause measurable health effects. Nuclear accidents and weapons tests have distributed vast quantities of radionuclides around the globe, exposing large populations to increased radiation doses. “Even the event-free routine operation of nuclear power plants leads to discernible health effects in the surrounding population.” Workers occupationally exposed to ionizing radiation show significantly higher rates of cancer, even when regulatory dose limits are not exceeded and their children “show a higher incidence of birth defects, leukaemia and lymphoma than other children.” (p 3)

“As a result of low-dose exposure to radioactive iodine, thyroid disease, including cancer, can be observed in children, adolescents and adults. Furthermore, low-dose ionizing radiation causes severe non-malignant diseases, such as meningioma and other benign tumour entities, cardiovascular, cerebrovascular, respiratory, gastrointestinal and endocrinological disease, psychiatric conditions, as well as cataracts.” (p 3)

Teratogenic effects have been observed in both human and animals following nuclear accidents, even in those only exposed to low levels of radiation. Some genetic effects occur in the first descendant generation, others only begin to appear in following generations. There is also evidence that in-utero and childhood exposure of the brain to ionizing radiation can impair cognitive development. "Numerous other studies also suggest genetic or epigenetic long-term damage caused by ionizing radiation." (p 3)

(4) Health risks of low-dose radiation can be reliably predicted and quantified on the basis of epidemiological studies and the concept of collective dose.

(5) The practice of basing risk factors for low-dose radiation on studies of Hiroshima and Nagasaki atomic bomb survivors is outdated. (Reasons detailed at p 5)

Risk estimates used by the International Commission on Radiological Protection (ICRP) and the UN Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) are out of date. A risk factor of 0.2/Sv should be applied for predicting mortality from cancer and 0.4/Sv for incidence of cancer. But even those risk factors discount the sensitivity to ionizing radiation in fetuses and young children under age ten, which even ICRP has acknowledged is higher than adults by a factor of 3. In addition the "risk factors for predicting incidence and mortality of non-malignant physical disorders (non-cancerous disease), in particular cardiovascular disease, are of the same order as for malignant diseases." (p 4)

(6) An improved risk-based concept of radiation protection is needed, combined with stringent practices to minimize radiation exposure.

"The protection of unborn life and the genetic integrity of future generations should be given highest priority. Radiation protection must therefore supplement adult-based models and take into consideration the increased vulnerability of the embryo and the young child." (p 6)]

Jaffe, Matt, Nuclear Materials 'Poison' Navajo Land, ABC News, Oct 23, 2007. http://abcnews.go.com/Politics/story?id=3764417.

[Ray Manygoats testifies about the damage done to him and his family by uranium mining on Navajo lands before a House Oversight and Government Reform Committee:. "'Our land today is poisoned. Today I am a man who has lost his health, his family and his ancestral way of life because of uranium'."

No comprehensive study has ever been done on the health problems resulting from uranium mining in the Navajo nation. However researchers believe that exposure to mining almost certainly triggered a dramatic rise in cancer among the Navajo. Years after many mines have been closed and abandoned, surface and groundwater contamination from the mines continues to plague the Navajo population. "'My family's land is poisoned,' says Manygoats. 'But no one helps us to remove the poison. I am here on behalf of my community to ask for your help.'"

George Arthur, representing the Navajo Nation government at the hearing, stated: "'Uranium mining and milling on and near the reservation has been a disaster for the Navajo people'."]

Kamptner E, Nuclear Power's Other Tragedy: Communities Living With Uranium Mining, Earthworks report, Jun 2011. http://www.earthworksaction.org/files/publications/Nuclear-Power-Other-Tragedy-low.pdf.

[Earthworks is a nonprofit focused on the protection of communities and the environment from adverse impacts of mineral and energy development and the promotion of sustainable solutions. This report details case studies of communities – especially Native American communities – impacted by conventional and *in situ* uranium mining, highlighting the more serious instances of contamination.

While *in situ* mining causes minimal land surface disturbance and doesn't produce tailings and waste rock, "groundwater contamination is inevitable and persists for decades." (p 7) The NRC has acknowledged that – although *in situ* mine permits call for complete restoration of groundwater conditions following mining operations, most baseline parameters have proved impossible to achieve. "Any *in situ* operation risks spreading uranium and its hazardous byproducts outside the mine, potentially contaminating nearby aquifers and drinking water sources. This has been a major problem with almost all *in situ* projects in the U.S." (p 7)]

Körblein A and Fairlie I, French Geocap study confirms increased leukemia risks in young children near nuclear power plants. Letter to Editor. International Journal of Cancer, (2012); 131: 2970–2971. http://www.researchgate.net/publication/223973890_French_geocap_study_confirms_increased_leukemia_risks_in_young_children_near_nuclear_power_plants.

Kuletz, Valerie L, *The Tainted Desert: Environmental Ruin in the American West*, New York, Routledge (1998). http://www.sric.org/workbook/V24_1/tainted.php.

[Valerie L. Kuletz, PhD, is a professor. The daughter of a weapons scientist, Dr. Kuletz grew up near Department of Defense site in the Mojave Desert. The book describes the heavy environmental and health burden placed upon Native American communities in the Southwestern US as a combined result of uranium mining and processing, nuclear testing and waste dumping. Areas particularly affected are the Mojave and Four Corners (which include Navajo, Hopi, Zuni, Paiute, Uti, Havasupai, and Shoshone, among other tribes). Dr. Kuletz also delves into the eco-politics underlying the proposed Yucca Mountain high level nuclear waste depository.]

Landrigan, Philip J, Collaborative on Health and the Environment (CHE) Partners Telebriefing, Sep 29, 2015. http://www.healthandenvironment.org/articles/partnership_blog/17983?&depth=1&order=1&sortby=3&render=nested.

[Philip J. Landrigan, MD, is a pediatrician, epidemiologist and a pioneering leader in the field of children's health. He is a Professor of Pediatrics at Mount Sinai School of Medicine and was named Dean for Global Health in 2010. Along with fellow pediatrician Ruth A. Etzel, Dr. Landrigan is an editor of the Textbook of Children's Environmental Health (Oxford University Press, 2013).

Research conducted by Dr. Landrigan and his colleagues has produced repeated findings of subclinical effects from chronic low-level exposure to chemical toxins; e.g., subclinical toxicity. Results tend to be lowered IQ points and behavioral and other developmental problems.

The neural system is a prime target in utero and during early childhood years. The "recurrent pattern" revealed is that low level exposures to chemicals can cause harm, especially during pregnancy and the first few years of life.. During those periods the effects are "very very different than effects the same chemical would cause in adults." Areas of particular vulnerability are the brain and developing nervous system.]

Little MP, Azizova TV, Bazyka D, Bouffler SD, Cardis E, Chekin S, Cumak VV, Cucinotta FA, de Vathaire F, Hall P, Harrison JD, Hildebrandt G, Ivanov V, Kashcheev VV, Klymenko SV, Kreuzer M, Laurent O, Ozasa K, Schneider T, Tapio S, Taylor AM, Tzoulaki I, Vandoolaeghe WL, Wakeford R, Zablotska L, Zhang W, and Lipshultz SE, Systematic Review and Meta-analysis of Circulatory Disease from Exposure to Low-Level Ionizing Radiation and Estimates of Potential Population Mortality Risks, Environmental Health Perspectives (2012); 120 (11): 1503-1511. http://ehp.niehs.nih.gov/1204982/.

[Meta-analysis by scientists from the Radiation Epidemiology Branch of the National Cancer Institute; the Department of Epidemiology and Biostatistics, University of California, San Francisco; the Department of Pediatrics, Leonard M. Miller School of Medicine, University of Miami; Radiation Health Office, NASA Johnson Space Center; as well as numerous medical and regulatory institutions in France, Germany, Japan, Russia, Spain, Sweden, Ukraine, and the UK.

The current science supports an association between low and moderate doses of ionizing radiation and circulatory disease mortality.

The authors conclude: "The estimates of population-based excess mortality risks for circulatory disease are similar to those for radiation-induced cancer, as also noted previously in relation to noncancer disease… If associations between low-level exposure to radiation and circulatory diseases reflect an underlying causal relationship that is linear at low doses, then the overall excess risk of mortality after exposure to low doses or low dose rates of radiation may be about twice that currently assumed based on estimated risks of mortality due to radiation-induced cancers alone." (p 1510)]

Llewellyn GT, Dorman F, Westland JL, Yoxtheimer D, Grieve P, Sowers T, Humston-Fulmer E, and Brantley SL, Evaluating a groundwater supply contamination incident attributed to Marcellus Shale gas development, Proceedings of the National Academy of Sciences (PNAS) (2015); 10.1073/pnas.1420279112. Abstract. http://www.pnas.org/content/early/2015/05/01/1420279112.

[Researchers from Appalachia Hydrogeologic and Environmental Consulting, LLC (NJ); Leco Corporation; and Earth and Environmental Systems Institute and Department of Geosciences, Pennsylvania State University, report a case in Pennsylvania where natural gas and other contaminants (including 2-n-Butoxyethanol) migrated laterally through kilometers of rock at shallow to intermediate depths, impacting an aquifer used as a potable water source.

The contamination – linked to Marcellus Shale gas development drilling or HVHF fluids — was detected using instrumentation not available in most commercial laboratories.

The study only looked at one incident, but, the authors argue, it demonstrates the need for more sophisticated analyses and public release of data.]

Llewellyn D and Vaddey S, Reclamation: Managing Water in the West – West-Wide Climate Risk Assessment: Upper Rio Grande Impact Assessment, U.S. Department of the Interior, Bureau of Reclamation study, Dec 2013.
http://www.usbr.gov/WaterSMART/wcra/docs/urgia/URGIAMainReport.pdf. {More at: http://www.usbr.gov/WaterSMART/wcra/.}

[Study by the U.S. Department of the Interior, Bureau of Reclamation projecting the impacts of climate change on water systems in the Upper Rio Grande Basin of Colorado and New Mexico. The study includes a detailed evaluation of the climate, hydrology and water operations, but does not attempt to project population growth, power generation evolution, or agricultural and other land use changes. Projections based on 2013 climate models.

From 1971 through 2011, average temperatures in the Upper Rio Grande Basin rose at a rate ~double the global rate of temperature rise. Such rates of warming are unprecedented over the last 11,300 years. "This rate of warming has the potential to cause significant environmental harm and change the region's hydrology." (p S-iii) Projections indicate temperatures in the region will rise by 4° to 6°F by the end of the 21st Century. (pp 1 & 117.)

"Overall, climate change is projected to significantly decrease available water supplies in the Upper Rio Grande Basis." (p 40) Average supplies of native water sources to the Rio Grande are projected to decrease by about one third over the course of the 21st Century. (pp 40 & 117.) Changes relate to the type (rain rather than snow), magnitude, timing (snowpack decreases), and variability of inflows (both more drought and more flooding) to the water system. The "usable, manageable water supply is expected to decline." (p 118)

Water management challenges posed by a highly variable and extremely limited water supply are exacerbated by prolonged drought, and – with climate change – the frequency, intensity, and duration of droughts are projected to increase. (pp S-i–S-iv) Rising temperature will also increase rates of evaporation.

All projections show an increase in variability in meteorological conditions (temperature and precipitation) and increases in the variability of runoff volume from month to month and year to year. (p 118) The frequency, intensity, and duration of floods are projected to increase. (p S-iv) Flooding will become more frequent, even as average supplies of water decrease and "extreme flows are projected to become more extreme with climate change". (p 102)

While the region's aquifer has a depth of several thousand feet, groundwater level declines represent the removal of the highest quality water because salinity increases with depth. (p 17) Removal of water from the groundwater also decreases river flows. "The growing imbalance between supply and demand would likely lead to a greater reliance on non-renewable groundwater resources." (p 118)

Less water can mean less water quality. "Concentrations of nitrogen, phosphorous, suspended solids, and salt in surface waters throughout the system are projected to increase in the future due to higher

evaporation rates for surface water." (p 119) In addition, runoff from the projected higher intensity precipitation could wash a greater volume of pollutants from land into the river. (pp 103 & 120)

All demands of water – agricultural, riparian, and urban landscaping – would be expected to increase due solely to the projected rise in temperature. Decrease of snow means a decrease in the storage of water available for use during the summer irrigation season. Reduction in water is expected to reduce both river flows and available shallow groundwater. Both impacts could alter habitat conditions for fish and wildlife, including endangered species.

"Ecological thresholds are transition points in which a small change in a physical or chemical parameter or a component of a system elicits a large, or non-linear, response of a natural or social-ecological system." (p 111) A threshold represents the endpoint of ecological resilience. In the Upper Rio grande Basin, the available water supply is low relative to the demand. "Ecological and human systems within the basin already operate close to thresholds related to available water supply." (p 111) Some ecosystems may have already crossed thresholds. For example, in the Jemez mountain forest of New Mexico, dry conditions have stressed trees, leading to bark beetle infestations and forest fires.

"Feedbacks can lead to cascading impacts. For example, more intense droughts and higher temperatures recently led to a greater moisture deficit in the region's forests in New Mexico. Trees that aren't getting enough water are more susceptible to beetle infestations, and infected weakened and dead trees are more susceptible to catastrophic wildfires. Thunderstorms tend to build over fire scars because heat builds up over the blackened ground, and intense thunderstorms on the fire scars lead to the washing of ash into rivers, and to debris flows. Ash in the rivers can lead to decreased oxygen in the water and cause fish kills. Debris flows can lead to sediment accumulation in our reservoirs, and sediment accumulation in our reservoirs can lead to less flood protection for downstream human infrastructure, and so on." (p 119)]

Loo LWM, Wang Y, Flynn EM, Lund MJ, Aiello Bowles EJ, Buist DSM, Liff JM, Flagg EW, Coates RJ, Eley JW, Hsu L, and Po PL, M, Genome-wide copy number alterations in subtypes of invasive breast cancers in young white and African American women, Breast Cancer Research and Treatment (2011); 127 (1): 297-308. Abstract. http://link.springer.com/article/10.1007%2Fs10549-010-1297-x.

[Report on population study by researchers from Fred Hutchinson Cancer Research Center; Cancer Research Center of Hawaii, University of Hawaii; Rollins School of Public Health, Emory University and Emory University School of Medicine; the Group Health Research Institute, Group Health Cooperative; the CDC; and the Department of Pathology at the University of Washington.

The researchers note that genomic copy number alterations are common in breast cancer and identifying characteristic alterations associated with specific breast cancer subtypes is a critical step in defining potential mechanisms of disease initiation and progression. They thus used genome-wide array comparative genomic hybridization to identify distinctive genomic copy number alterations in different breast cancer subtypes of young women diagnosed with breast cancer prior to age 55 years.

Data showed that estrogen receptor negative (ER-) tumors had a higher average frequency of genome-wide gain and loss compared to estrogen receptor positive (ER+) tumors and triple-negative (TN) tumors had a higher average frequency of genome-wide gain and loss than non-TN tumors.

In addition, the authors report, copy number alterations differ in frequency between TN breast tumors of the African American and Caucasian American women. This is of particular relevance because TN breast cancer {*basal-type*} is associated with higher mortality and young African American women have higher rates of TN breast tumors compared to Caucasian women. The data suggests that higher overall frequency of genomic alteration events as well as specific focal copy number alterations in TN breast tumors may, in part, contribute in part to the poor breast cancer prognosis for young African American women.]

Loomis, Brandon, Abandoned uranium mines continue to haunt Navajos on reservation, The Republic /AZ Central, Aug 4, 2014.
http://www.azcentral.com/story/news/arizona/investigations/2014/08/04/uranium-mining-navajos-devastating-health-effects/13591333/.

[The Colorado Plateau is "scarred, poisoned and frightening a people who still live with the radioactive residue of 521 abandoned mines scattered across their reservation's 17.2 million acres." The Environmental Protection Agency (EPA) reached a $1 billion settlement with Anadarko Petroleum Co. for past mining by subsidiary Kerr-McGee Corp., which Anadarko acquired in 2006. The money is part of a record $5 billion nationwide settlement for a number of environmental violations. But the $1 billion for Navajo cleanup is only enough to cleanup a few dozen (49) abandoned uranium mines, and no company has accepted liability for the rest. The federal government has promised cleanup, but at current low funding levels that could take 100 years to complete.

Uranium ore and debris emits alpha particle radiation which does not penetrate skin, but can be ingested or breathed as dust. Much of the toxic material is expelled by the body within days, but with chronic exposure, it can accumulate in the bones and stress the kidneys as they work to expel it. Chronic exposure, the Environmental Protection Agency, says, is known to damage kidneys and increases risk of cancer and liver disease. At certain mine sites, gamma radiation – a high-frequency penetrating radiation – is also well above regulatory doses. EPA scans of 474 abandoned uranium mines on the Navajo reservation found that 403 had gamma radiation at 2 times the background level, and 226 showed radiation at 10 times background.

Church Rock, NM, has two massive uranium waste-rock piles. A 1979 dam break at the site unleashed one of the largest radioactive uranium contamination accident in US history. "Contamination flooded downstream to the Rio Puerco and Gallup, eventually disappearing out of sight and beyond tracking in the aquifer somewhere above the confluence with Arizona's Little Colorado." While the companies mining at Church Rock ceased digging uranium in the 1980s, site cleanup remains to be done. In addition, a Texas-based corporation, Uranium Resources Inc., wants to use an in-ground leaching system to dissolve and extract uranium for nuclear power plants. Uranium Resources controls a private square of land surrounded by Navajo reservation land, and wants right of access.

A study published in the journal Health Physics in 2000 found Navajo uranium miners had a lung-cancer rate nearly 29 times that of Navajos who didn't work in the mines. From 1969 to 1993, two-thirds of new lung cancers in Navajo men afflicted miners.

Pulmonary fibrosis, multiple-organ failure, and kidney disease also commonly afflicts miners, said Gary Foster, a visiting nurse who treats miners in Colorado. "'If they don't lose their ability to breathe,' he said, 'they're all going to get cancer'. … 'All of the patients I've dealt with, they've had to have it

explained to them why they're sick…They don't understand the concept of it sitting in their lungs and staying there forever.'"

Now the children of old miners – who grew up drinking from contaminated wells – are falling ill even as their own children play around abandoned uranium pits and piles.

No funding has been made available to study the full effects of chronic uranium exposure in the Navajo population. Dr. Charles Wiggins, director of the New Mexico Tumor Registry notes: "We don't really have a lot of solid studies that document the effects of exposure."

However a study of health effects upon mothers and babies is being conducted by the University of New Mexico in collaboration with the Southwest Research and Information Center. University of New Mexico researcher Jennifer Ong reports early results show uranium is ubiquitous in blood and urine samples – including in babies. Virtually all of the first 208 samples had uranium levels above the 50th percentile for the US, and 15% spiked past the 95th percentile.]

Makhijani A, Comments of the Institute for Energy and Environmental Research (IEER) on *Analysis of Cancer Risks in Populations near Nuclear Facilities: Phase I,* Prepublication copy, Jun 5, 2012. http://ieer.org/wp/wp-content/uploads/2012/06/ieer-analysis-cancer-risks-populations-comments-june2012.pdf.

[Comments authored by Arjun Makhijani, PhD, to the National Research Council, Committee on the Analysis of Cancer Risks in Populations near Nuclear Facilities – Phase I. Dr. Makhijani urges, *inter alia*, assessment of the following: (1) Tritium releases to the atmosphere by nuclear power plants. This information is especially important for the understanding of noncancer effects as well as cancer risks, particularly for in utero and early childhood exposures. (2) Exposure to multiple nuclear facilities. (3) Exposure to carcinogens from other facilities. (4) Exposure geography.

Study needs to be done which also looks at incidence of various cancers of *specific* types (eg, different leukemias, brain and nervous system cancers); morbidity; failed pregnancies; malformations as affected by early embryo/fetus exposure; and immune system function as affected by fetal exposure at the time of bone and bone marrow formation. It is thus critical to have reliable determination of strontium-90 exposure.]

Makhijani A, Smith B, and Thorne MC, Science for the Vulnerable: Setting Radiation and Multiple Exposure Environmental Health Standards to Protect Those Most at Risk, Report of the Institute for Energy and Environmental Research (IEER), Oct 19, 2006. http://ieer.org/wp/wp-content/uploads/downloads/reports/Science-for-the-Vulnerable.pdf.

[Detailed, exhaustive review by internationally renowned physicist and radiation expert Arjun Makhijani, PhD, Brice Smith, PhD, and Michael C Thorne, PhD of the health risks of exposure to low level radiation and the extensive gaps and inadequacies in the radiation protection standards, which are long-outdated.

Among the many flaws of the regulatory scheme: Protection is geared almost solely to cancer risk and does not recognize noncancer illnesses, early failed pregnancies, or birth defects. There are no standards for protection of breast-fed children. Combined risks of exposure to radiation and toxic

chemicals are ignored, even though some can affect the same systems adversely and may interact synergistically, not just additively. Theoretical models evaluating exposure of the embryo/fetus fail to consider beta-emitting radionuclides (especially low-energy beta emitters like tritium) and alpha emitting radionuclides that may cross the placenta. Considerations of damage to the immune system are ignored (isotopes like strontium-90 notably can affect the red bone marrow). (p 76)

A central principle of environmental protection must be to protect those most at risk.

The current US regulatory scheme utterly fails in the protection of women, children, babies and babies in utero; all groups which are especially vulnerable to radiation's effects.]

Mangano J, Report on Health Status of Residents in San Luis Obispo and Santa Barbara Counties Living Near The Diablo Canyon Nuclear Reactors Located in Avila Beach, California, Report for World Business Academy, Mar 3, 2014. http://worldbusiness.org/wp-content/uploads/2014/03/Report-on-Health-Status-of-Residents-Near-Diablo-Canyon-Nuclear-Power-Plant.pdf.

[Trend analysis by the director of the Radiation and Public Health Project (RPHP) of negative health indicators in San Luis Obispo County correlated with the operation the Diablo Canyon nuclear power plant. The two reactors at Diablo Canyon commenced operation in 1984 and 1985, respectively. The findings suggest that federally-permitted radiation releases from nuclear power poses a health risk to the public.

Among the key findings are that after Diablo Canyon commenced operation, (1) cancer rates in the county rose from relatively low to high (with increases translated into an additional 738 people diagnosed with cancer); (2) significant and rapid increases occurred for the incidence of thyroid and female breast cancer, both highly radiosensitive cancers; (3) infant mortality rose significantly; (4) melanoma incidence rose significantly, and became the highest of all California counties; (5) child/adolescent cancer mortality rose rapidly; (6) cancer mortality for all ages rose significantly.

In addition, in the 10 zip codes closest to Diablo Canyon there was a greater rise in the rates of infant mortality, low weight births, and total mortality, than in the 5 zip code areas in the city of Santa Barbara ~90 miles from the reactors.

The major findings of this report show increases in various rates of disease and death in San Luis Obispo County, as compared to California state averages following start of plant operation. This includes increases in infant mortality, child/adolescent cancer mortality; cancer incidence for all ages – but especially thyroid cancer, breast cancer and melanoma; and cancer mortality for all ages.

The study concludes: "While many factors can affect disease and death rates, the official public health data presented in this report suggest a probable link between the routine, federally-permitted emissions of radioactivity from the Diablo Canyon nuclear power plant and elevated health risks among those infants, children and adults living closest to the reactors."

The data is consistent with earlier studies showing significant declines in local illness and death rates following shutdown of the Rancho Seco nuclear power plant in Sacramento County in 1989.]

Mangano JJ and Sherman JD, Long-term Local Cancer Reductions Following Nuclear Plant Shutdown, Biomedicine International (2013); 4 (1): 1-12. http://www.bmijournal.org/index.php/bmi/article/viewFile/115/82

[Epidemiologic study authored by Joseph Mangano, Executive Director of the Radiation and Public Health Project (RPHP) and Janette Sherman, MD, a toxicologist. It reports the first long-term study of the full-population health impacts of the closure of a U.S. nuclear reactor. In 20 years following closure, the authors found 4,319 fewer cancers, including notable drops in cancer for women, Hispanics and children.]

Masuda Y, Molecular nature of radiation injury and DNA repair disorders associated with radiosensitivity, International Journal of Hematology (2012); 95 (3): 239-245. Abstract. http://link.springer.com/article/10.1007/s12185-012-1008-y#page-2.

[Authors are from the Research Institute of Environmental Medicine at Nagoya University and the Research Institute for Radiation Biology and Medicine at Hiroshima University (Japan). They observe that ionizing radiation, like many other chemicals and reactive oxygen species, can cause insults to DNA integrity. However ionizing radiation is distinct from other agents in that it produces clustered DNA damage, especially double-strand DNA breaks (DSBs). Investigation into radiosensitive diseases has revealed molecular mechanisms underlying the impact of cellular responses to radiation and repair of DSBs. Importantly, radiosensitive diseases are also associated with immune system dysfunction and increased risks of leukemia and lymphoma.]

McAllister KA, Lorimore SA, Wright EG, and Coates PJ, *In Vivo* Interactions between Ionizing Radiation, Inflammation and Chemical Carcinogens Identified by Increased DNA Damage Responses. Radiation Research (2012); 177 (5): 584-593. Abstract: http://www.rrjournal.org/doi/abs/10.1667/RR2690.1.

[Researchers are from the Centre for Oncology and Molecular Medicine, Division of Medical Sciences, University of Dundee, Ninewells Hospital and Medical School.

Ionizing radiation and a variety of chemical agents known to increase the risk of developing malignancies and many tumors have been linked to inflammatory processes. Most studies consider the potentially harmful effects of ionizing radiation or other agents in isolation, primarily because of the difficulty and expense of investigating the effects of mixed exposures with different doses and different schedules, as well as the length of time needed to identify disease as a measure of outcome. In this murine study, the research group used short-term DNA damage responses to identify interactive effects of mixed exposures.

The data showed that exposure to ionizing radiation on 2 separate occasions 10 days apart led to an increase in the percentage of cells with a sub-G_0 DNA content compared to cells exposed only once, and this is a greater than additive effect. Short-term measurements of p53 stabilization, induction of p21/Cdkn1a and of apoptosis also identify these interactive effects. The investigation revealed similar interactive effects of radiation with the a mutagenic chemical (methyl-nitrosourea) and with a nonspecific pro-inflammatory agent (lipopolysaccharide). The magnitude of the interactive effects was found to be greater in cells taken from mice first exposed as juveniles compared to adults. Overall, the

findings indicate that short-term measurements of DNA damage and response to damage are useful for the identification of interactions between ionizing radiation and other agents.]

Miller, Mark, Catherine Metayer, and Gary V. Dahl, Childhood Leukemia: An Ounce of Prevention, Environmental Health Policy Institute, Jun 24, 2014. http://www.psr.org/environment-and-health/environmental-health-policy-institute/childhood-cancer-and-the-environment.html.

[Author Mark Miller, MD, is an Assistant Clinical Professor in the Departments of Pediatrics and Occupational and Environmental Medicine at the University of California San Francisco (UCSF) and the Director of the UCSF Pediatric Environmental Health Specialty Unit (PEHSU). Catherine Metayer, MD, PhD, is Professor at the UC Berkeley, School of Public Health and Director of the Center for Integrative Research on Childhood Leukemia and the Environment (CIRCLE). Gary V. Dahl, MD is a Professor of Pediatrics and the Program Director for the Hematology/Oncology Fellowship Training Program at Lucile Salter Packard Children's Hospital at Stanford University.

During the 35 years between 1975 and 2011, there has been a 55% increase in the number of children diagnosed annually (per capita, age adjusted) with leukemia and substantial evidence of risk factors has emerged over the past two decades. “This growing body of literature has implicated the potential role of environmental hazards in the etiology of childhood leukemia. Exposures to ionizing radiation, solvents, pesticides, and tobacco smoke have consistently demonstrated positive associations with the risk of developing childhood leukemia.”

The failure to take steps toward prevention of childhood leukemia stems from a reluctance to attribute environmental factors as causative. This is due, in part, to the high bar required to reach consensus on causation and the fact that double blinded randomized studies would be unethical. However, in their paper on smoking, breast cancer and the increasing cost of caution, Glantz and Johnson cite the findings of the Surgeon General’s Report on Smoking and Health of 1964 which stopped short of determining smoking caused cardiovascular disease. The report nevertheless concluded action was warranted:

“‘Although the causative role of cigarette smoking in deaths from coronary disease is not proven, the Committee considers it more prudent from the public health viewpoint to assume that the established association has causative meaning than to suspend judgment until no uncertainty remains’.”

It is time to use the hard-won accumulating knowledge in children’s environmental health to begin fostering prevention activities, including those targeted at the prevention of childhood leukemia.”]

Moore-Nall, A, The Legacy of Uranium Development on or Near Indian Reservations and Health Implications Rekindling Public Awareness, Geosciences (2015); 5 (1): 15-29. http://www.mdpi.com/2076-3263/5/1/15/htm.

[Author Anita Morre-Nall, of the Department of Earth Sciences at Montana State University, notes energy material from uranium mining and milling activity contains harmful chemical substances that – if mobilized into air, water, or soil – can adversely impact human health and environmental quality. The legacy of uranium procurement in the U.S. has left a legacy of long-lived health effects for many

Native Americans. The largest population and some of the most impacted people are the tribes living in the Southwest, especially the Navajo, but also Sioux, Spokane Nation and many others.

“As a result of the mining activity much of the population of the Navajo Nation residing near the areas of mining or milling has had their health compromised. Most of the 1000 unsealed tunnels, unsealed pits and radioactive waste piles still remain on the Navajo reservation today, with Navajo families living within a hundred feet of the mine sites.”

Uranium mining has also left a legacy of contaminated groundwater and tailings on the Wind River Reservation, Wyoming, home to Eastern Shoshone and Northern Arapaho Indians. “Increased incidences of cancers among its peoples are attributed to the old Susquehanna-Western uranium mill tailings site. The site is a few miles southwest of Riverton, the ninth most-populated city in Wyoming. In some areas of the Wind River Indian Reservation groundwater contamination is so bad that the Department of Energy (DOE) estimates drinking water from contaminated aquifers could make residents up to 10 times more likely to develop cancer than the general population.”

Pacific Northwest tribal groups on nine reservations in Washington, Idaho and Oregon have also been impacted by Hanford Nuclear reservation activities. The peoples of these reservations traditionally used and continue to use the lands and resources from the Columbia River Plateau region including land ceded to the government for which they retained hunting and gathering privileges. “Thus, they may have been exposed to more radiation and contaminants than the general public in practicing traditional lifestyles while fishing, hunting game, food gathering (berries, root plants, *etc.*) harvesting medicinal plants and traditional practices (*i.e.*, sweats), as well as social and spiritual interaction networks.”

The other four reservations, the Nez Perce, Confederated Tribes of the Umatilla, Confederated Tribes and Bands of the Warm Springs and the Yakama Nation are known to consume large quantities of fish and likely received higher doses of river borne releases which resulted from radiation releases into the Columbia River water. In addition, liquid waste that had been poured onto the ground or held in ponds or trenches at the Hanford reservation evaporated or soaked into the soil on the site. The contaminated areas are thought to have also created underground “plumes” of contaminants which could also affect native peoples who consume native food sources in the area.

A study in the Eastern Agency of the Navajo Nation, NM found that, despite decades of inactivity in the mines and mills investigated, environmental contamination was widespread, often near homes, livestock grazing areas, and locations frequented by children and families. “The uranium contamination in this area was predominantly in the highly soluble chemical forms that could be spread when disturbed or by the bursts of precipitation that occur in this semiarid region at certain times of the year.”]

Mothersill C and Seymour C, Implications for human and environmental health of low doses of ionizing radiation, Journal of Environmental Radioactivity (2014); 133: 5-9. Abstract. http://www.sciencedirect.com/science/article/pii/S0265931X1300091X

[Paper by Carmel Mothersill and Colin Seymour of the Medical Physics and Applied Radiation Sciences Department, McMaster University (Canada).

In the last 20 years there has been a major paradigm shift in radiation biology. Discoveries challenge the DNA centric view which holds that DNA damage is the only critical effect of low-dose radiation.

It was long assumed that the more energy deposition, the more DNA damage and the greater the biological effect. This belief is embodied in radiation protection regulations as the linear-non-threshold (LNT) model.

However the science underlying the LNT model – particularly with respect to environmental exposure – is simplistic and outdated. It is now clear that, at low doses, cells, tissues and organisms respond to radiation by inducing responses which are not readily predictable by dose. These include adaptive (or non-targeted) response phenomena: bystander effects, genomic instability and low dose hypersensitivity. Organism "stress" response behaviors are influenced by genetic, epigenetic and environmental factors.

Recent findings show that low dose radiobiology is very complex and that supra linear or sub-linear (even hormetic) responses are possible and their occurrence is unpredictable at the given system level. Radiation protection models need reevaluation and may further require consideration of the synergistic or antagonistic effects of other pollutants. Radiation protection, at present, only looks at radiation dose but the new radiobiology means that chemical or physical agents, which interfere with tissue responses to low doses of radiation, could critically alter predicted risk.]

Mothersill C and Seymour C, Eco-systems biology – From the gene to the stream, Mutation Research/Fundamental and Molecular Mechanisms of Mutagenesis (2010); 687 (1-2): 63-66. Abstract. http://www.sciencedirect.com/science/article/pii/S0027510710000321.

[Paper by Carmel Mothersill and Colin Seymour of the Medical Physics and Applied Radiation Sciences Department, McMaster University (Canada) discussing the implications of new developments in radiobiology and ecotoxicology for environmental health and ecosystem sustainability. The authors observe that emerging research indicates that the non-targeted effects of low doses of radiation "not only mirror similar effects from low doses of chemical stressors but may actually lead to unpredictable emergent effects at higher hierarchical levels."

The field of multiple stressors (both radiation and chemical) is highly complex and agents can interact in additive, antagonistic or synergistic ways. Low dose multiple stressor exposure outcomes are additionally effected by the context in which the stressors are received, perceived or communicated by the organism or tissue.

Since multiple stressor exposure is now the real life norm in the environment, it is essential to move away from single stressor-based protection to response-based risk assessment. Radiation protection must be seen within the context of multiple stressors. From the human health perspective, "the importance of 'pollution' (a generic term for multiple environmental stressors) as a cause of non-cancer disease is increasingly being recognized."]

National Academy of Sciences; BEIR VII Report: Health Risks From Exposure to Low Levels of Ionizing Radiation, BEIR VII – Phase 2, Report of the Committee to Assess Health Risks from Exposure to Low Levels of Ionizing Radiation to the National Research Council of the National

Academies, Washington, D.C. National Academies Press (2005) (known as the "BEIR VII" study). {*Page numbers correlate to prepublication hardcopy}.* http://books.nap.edu/catalog.php?record_id=11340.

[The U.S. National Academy of Sciences Committee to Assess Health Risks from Exposure to Low Levels of Ionizing Radiation (a/k/a, Committee on the Biological Effects of Ionizing Radiation) issued this study as the 7th in a series of reports from the National Research Council prepared to advise the US government. This report is known as the BEIR VII study. Low linear energy transfer (low-LET) radiation (x rays and γ rays) is the subject of the report. (pp 1 & 47) Authors note, however, that high linear energy transfer (high-LET) radiations (α or heavier ion particles) can cause more damage per unit absorbed dose, which is why a weighted quantity, equivalent dose, or its average over all organs – *effective dose* – is used for radiation protection purposes. For low-LET, equivalent dose = absorbed dose. (p 1) "In this report, "only data that are of utility to a quantitative assessment of a dose-response relationship" between radiation exposure and cancer are included. Thus, to avoid dosimetry uncertainties, BEIR VII relies principally on findings from atomic bomb survivor and medical radiation exposure studies, as opposed to ecologic studies of populations living near nuclear facilities, since those do not contain individual estimates of radiation dose. (See, *eg*, pp 26- 28, 423 & 483)

The BEIR VII Committee notes that ionizing radiation, by definition, contains enough energy to displace electrons and break chemical bonds. Specifically, the Committee judged that the linear no-threshold (LNT) model provides the most reasonable description of the relation between low dose exposure to ionizing radiation and the development of cancer. (pp 13, 154 & 571) (p 12) On average, assuming a sex and age distribution similar to the entire US population, the BEIR VII lifetime risk model predicts that ~1 in 100 persons would be expected to develop a solid cancer or leukemia from a single exposure to 0.1Sv of low-LET radiation, while ~1 in 1000 would develop cancer from an exposure to 0.02Sv. (p 15)

However, sex and age at exposure modify risk at the individual level. Also, a dose-relationship with mortality from non-neoplastic disease mortality has been found in a number of analyses. For example statistically significant associations have been found for the categories of heart disease, stroke, and diseases of the digestive, respiratory and hematopoietic systems. (pp 272 & 282) Studies with large cohorts of both child and adult patients treated with radiation therapy for non-malignant diseases (eg, peptic ulcers, ankylosing spondylitis, benign breast and gynecological diseases) have found statistically significant increased risk for many forms of cancer. (pp 284-299) For example, a study of a cohort of women who received repeated fluoroscopic examinations to monitor lung collapse found that incidence of breast cancer increased the younger the rate of exposure and the excess breast cancer risk – which only became apparent as of 15 years after exposure – remained high for the period of observation of over 50 years. (pp 298-299)]

Treatment for childhood cancers has prolonged the life expectancy of children with cancer, but the risk of developing second cancers later in life is elevated by treatment, notably studies have found significant increased risk of bone cancer and thyroid cancer has been found among patients who received radiation therapy. (pp 283-284)

Pre-natal radiation exposures elevate childhood radiation risk at a statistically significant level, with excess cancers detected at doses of 10mSv. (pp 302-303)

The BEIR VII study concluded that there is no level of radiation which can be considered harmless.]

National Climate Assessment, Climate Change Impacts in the United States, Report, May 2014. http://nca2014.globalchange.gov/report.

[Report produced by a team of more than 300 experts guided by a 60 member Federal Advisory Committee and extensively reviewed by experts, including federal agencies and a panel of the National Academy of Sciences. The Southwestern U.S. is at particular risk of heat waves and severe prolonged droughts.

"Energy systems will evolve over time, depending upon myriad choices made by countless decision-makers responding to changing conditions in markets, technologies, policies, consumer preferences, and climate..... Renewable energy sources, including solar, wind, hydropower, biofuels, and geothermal are meeting a growing portion of U.S. demand, and there is the opportunity for this contribution to increase in the future." (Chap 5, p 20)]

Nuclear Regulatory Commission, NRC Web Page (accessed April 15 2015). http://www.nrc.gov/info-finder/decommissioning/uranium/rio-grande-resources-corp.html.

[Chevron sold the facility to Rio Grande Resources Corporation (RGR), a subsidiary of General Atomics. The license was amended in May of 1997 to reflect the transfer of the facility to RGR. Rio Grande Resources Corporation completed decommissioning of the mill site. The tailings impoundment has been capped and a vegetative cover established. The tailings impoundment is still being monitored for performance.

3.0 Major Technical or Regulatory Issues: Groundwater remains an outstanding issue. The licensee has submitted an application for alternate concentration limits. The licensee has indicated a desire to amend the license to authorize an in situ leach uranium recovery processing facility. The expressed desire is to retain the current license number and have the tailings impoundment removed and transferred to the DOE, rather than terminate the license. The agency will need to work through this with the NRC.]

Nuclear Information and Resource Service (NIRS); Public Citizen; and Riverkeeper, Indian Point's Owner Played Role in Attacks on Environmental Justice, News Release, Feb 25, 2004. http://www.nirs.org/press/02-25-2004/1.

["Entergy, owner of the Indian Point nuclear power plant, has been part of an aggressive effort led by the Nuclear Energy Institute (NEI), the industry's leading lobbying arm and policy organization, to eviscerate the Nuclear Regulatory Commission's policy on environmental justice. The NEI, in which Entergy is a major player, is blaming the NRC's EJ policy for stalling proposed projects — a few of which involve Entergy. Meanwhile, in a strongly worded letter to the Entergy Corporation, the National Association for the Advancement of Colored People supported their Claiborne County, Mississippi Chapter's opposition to Entergy's bid for new reactors in Port Gibson, MS on the grounds that the proposal constitutes environmental racism. Finally, as has been discussed often, Indian Point's nuclear fuel cycle disproportionately affects low income communities and communities of color."]

Nussbaum RH, Childhood Leukemia and Cancers Near German Nuclear Reactors: Significance, Context, and Ramifications of Recent Studies, International Journal of Occupational and Environmental Health (2009); 15 (3): 318-323. http://www.ingentaconnect.com/content/maney/oeh/2009/00000015/00000003/art00012 See also **http://www.nirs.org/radiation/radhealth/kikkcommentary0709ijoeh.pdf**

[Review of studies on childhood leukemia and cancers near nuclear plants by Rudi H. Nussbaum, PhD, Physics and Environmental Studies emeritus faculty, Portland State University.]

Olson M, Atomic Radiation is More Harmful to Women, Nuclear Information and Resource Service Briefing Paper, 2014. https://www.nirs.org/radiation/radhealth/radiationwomen.pdf.

[Briefing based on analysis by Mary Olson, Director of the NIRS Southeast Office, elucidating data contained in the 2006 study of the National Academy of Sciences (NAS) titled "Biological Effects of Ionizing Radiation (BEIR VII) – Health Risks from Exposure to Low Levels of Ionizing Radiation" (known as the BEIR VII study or report).

BEIR VII focuses only on radiation doses delivered from outside the body: gamma (γ) and X-rays – with little attention to doses from radioactivity received internally from alpha (α) and beta (β) particles. BEIR VII also focuses narrowly on cancer risk. "Nonetheless, the NAS report is stunning enough: it finds that harm to women (cancer) is 50% higher than the comparable harm to men from radiation doses that fall within the legal limit to the public over a lifetime. Let's be clear: radiation kills men – but it kills significantly **more** women. *Both cancer incidence and death are 50% higher for women*."

Harm from radiation can depend upon the amount, type (internal/external), and timing of exposure as well as the presence of other carcinogens and stressors. Children are significantly more vulnerable than adults.

While the NAS focus in BEIR VII was on external exposure, internal exposure – *ie*, radioactivity taken inside the body via inhalation, absorption and ingestion – is substantially different. High-LET α and β particles travel with a force which, combined with their greater mass, may inflict greater damage to living tissue than x-rays "Internalized radiation also results in higher doses since every internal emission absorbed, at zero distance to the impacted tissues, will cause radiation impact for as long as it is in the body, and may concentrate in the most vulnerable areas, such as gonads or bone marrow."

Exposure from industrial activity comes on top of natural radiation from terrestrial sources (primarily uranium and its decay progeny in rocks and earth) and non-terrestrial sources (γ rays from space). Notably, "'natural radiation' results in 'natural cancer.'"

Reactors routinely release radioactivity to air, water and as solid waste, with ongoing potential for radiation exposure even without an accident. "The radioactivity generated by a single 1000-megawatt nuclear reactor unit *per year* is on the scale of 1000 detonations of an atomic bomb like the one that destroyed Hiroshima."

The growing number of nuclear accidents (Fukushima; Chernobyl; Three Mile Island; Brookhaven; Santa Suzanna; Fermi 1; Kyshtym; Windscale; et al) also add to levels of so-called "background" radiation; increasing actual received human doses.]

Pagano G, Talamanca AA, Castello G, Cordero MD, d'Ischia M, Gadaleta MN, Pallardo FV, Petrovic S, Tiano L and Zatterale, Oxidative Medicine and Cellular Longevity (2014); 2014. Doi: 10.1155/2014/541230. http://www.hindawi.com/journals/omcl/2014/541230/abs/.

[Broad-ranging review of research elucidating oxidative stress mechanisms and mitochondrial dysfunctions across a broad range of immune, neurological, cardiovascular, endocrine, malignancies, and genetic pathologies. (Among the conditions of focus are: Autism Spectrum Disorders; Down Syndrome; aging and aging-related degenerative disorders; cardiovascular diseases; epilepsy; Myalgic Encephalomyelitis; Multiple Sclerosis; lupus erythematosus; breast cancer; lung cancer; myeloid leukemia; melanoma; and cataracts.)

Beyond the focus on individual diseases and disease groups sharing molecular or clinical affinities, the review attempts to elucidate the ways oxidative stress (and resulting reactive oxygen species) and mitochondrial dysfunction (including mDNA damage) act as mechanisms either directly or in concert with other inborn or exogenous causes of disease.]

Palmer, Brian, The Nuclear Industry's Astroturf Movement in Communities of Color, Colorlines, May 26, 2011. http://www.colorlines.com/articles/nuclear-industrys-astroturf-movement-communities-color.

[A PR campaign waged by Entergy has aimed to convince communities of color that closing Indian Point would cause them detriment and lead to increased rates of asthma. In fact, there is no evidence for this assertion. Raging asthma epidemics in New York's urban neighborhoods are due to a number of environmental hazards that disproportionately clump in places like Harlem (*eg*, air pollution from bus depots and truck exhaust). Yet "Entergy's assertions, misleading though they may be, have found support among some community leaders who have accepted the corporation's claims at face value."

Part of the corporation's PR effort has been manufacturing a "community-based" movement, and then luring minority leaders to join. One such front – or "astroturf" – group is Safe Healthy Affordable Reliable Energy, or SHARE, which " isn't so much a community group concerned about 125th Street as it is an arm of Entergy's PR department. … SHARE doesn't just have a relationship with Entergy; SHARE is Entergy. Documents the nonprofit filed with the IRS list Entergy executives as SHARE officers. Government affairs manager Joanne Fernandez is recorded as 'assistant treasurer.' Also in the lineup: the Vidal Group's head Alfredo Vidal, and Darren Peters, an officer at Entergy's political action committee."

"'You have entered a web in which corporations move money around to these front organizations,' says Susan Lerner, executive director of the watchdog group Common Cause. 'It makes it seem that these are community-based advocacy groups, when it's just the corporation in another guise.'"

In addition, through its political action committee, Enpac, Entergy runs public information campaigns and contributes generously to politicians and civic organizations, including those in communities of color. "But Entergy's information operations have a more insidious purpose than simply informing--or half-informing--the populace. Successful info ops divide and conquer one's opposition, and Entergy has been hard at work doing just that."]

President's Cancer Panel, Reducing Environmental Cancer Risk, Report of the U.S. Department of Health and Human Services, the National Institutes of Health, and National Cancer Institute, 2008-2009. http://deainfo.nci.nih.gov/advisory/pcp/annualReports/pcp08-09rpt/PCP_Report_08-09_508.pdf.

[Panel states: "The true burden of environmentally induced cancer has been grossly underestimated." Despite the fact it is more effective to prevent disease than to treat it, prevention efforts have focused narrowly on life style factors like avoiding smoking. "Scientific evidence of individual and multiple environmental exposure effects on disease initiation and outcomes, and consequent health system and societal costs, are not being adequately integrated into national policy decisions and strategies for disease prevention."]

Richardson RB., Ionizing radiation and aging: rejuvenating an old idea. Aging (2009); 1 (11): 887–902. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2815743/

[Richard B. Richardson, of the Radiological Protection Research and Instrumentation Branch, Atomic Energy of Canada, Chalk River laboratories, reviews contemporary evidence that radiation can accelerate aging, degenerative health effects and mortality.

While radiation has long been associated with neoplasm, emerging evidence indicates that radiation is associated with a much wider spectrum of diseases, including cardiovascular, digestive diseases and respiratory diseases. The paper compares the now-known biological mechanisms of aging with those of radiation, including oxidative stress, inflammation, chromosomal damage, mitochondrial damage, apoptosis, and stem cell exhaustion.

For example: "Reactive oxygen species (ROS) and its nitrogen-equivalent (RNS) are the main sources of free radical damage. IR produces ROS and RNS in the presence of the respective gases. ROS include superoxide anion ($O_2^{\bullet-}$), hydrogen peroxide (H_2O_2), and the hydroxyl radical ($OH^{\bullet}$). Reactive nitrogen species include nitric oxide (NO) and peroxynitrite ($ONOO^-$). ROS are by-products of neutrophils' and macrophages' contribution to an inflammatory response and of mitochondrial respiration. ROS/RNS attack macromolecules causing oxidative stress, a process involved in the etiology of many diseases, and even at low levels in some organs such as the brain probably contributes to aging. In general, increased endogenous ROS cellular levels, and elevated oxidative damage to DNA such as 8-hydroxydeoxyguanosine (8-oxo-dG), parallel the aging process."

Ionizing radiation may inflict damage directly on cells and also through, perhaps understated, indirect means. Radiation-induced oxidative stress can disrupts intracellular signaling and cell-to-cell communication, perhaps accelerating an age-dependent decline.

The case is well documented for high dose aging effects. The challenge is to better understand the effects of low doses.]

Robertson A, Allen J, Laney R, and Curnow A, The Cellular and Molecular Carcinogenic Effects of Radon Exposure: A Review, International Journal of Molecular Sciences (2013); 14 (7): 14,024-14,063. http://www.mdpi.com/1422-0067/14/7/14024/htm.

[Authors from Royal Cornwall Hospital (UK) observe that chronic exposure to radon and its decay products is estimated to be the second leading cause of lung cancer after smoking.

Biologically damaging cytogenetic effects from alpha (α) particles produced by radon and its progeny – which include α particles, beta (β) particles and gamma (γ) radiation of various energies – could result from a variety of mechanisms. These include: mutations; chromosome aberrations; generation of reactive oxygen species (ROS); apoptosis; modification of the cell cycle; up or down regulation of cytokines; and the increased production of proteins associated with cell cycle regulation and carcinogenesis. There is also substantial evidence of bystander effects (cell signaling) which complicates calculation of risk estimates. At low doses cellular responses often appear to deviate (both beneficially and detrimentally) from the linear, no threshold model. At low doses, effects may also depend on cellular conditions, not just dose.

In sum, the cellular and molecular carcinogenic effects of radon are both numerous and complex.]

SEER Cancer Statistics Review, 1975-2011, National Cancer Institute. Bethesda, MD, Howlader N, Noone AM, Krapcho M, Garshell J, Miller D, Altekruse SF, Kosary CL, et al., (ed.s), review based on Nov 2013 SEER data submission, published on SEER web site, Apr 2014. http://seer.cancer.gov/csr/1975_2011/.

[The incidence of childhood leukemia (age 0-14 years) in the US has increased an average of 0.7 % per year since 1975.]

Sermage-Faure C, Laurier D, Goujon-Bellec S, Chartier M, Guyot-Goubin A, Rudant J, Hémon D, and Clavel J, Childhood leukemia around French nuclear power plants—The geocap study, 2002–2007, International Journal of Cancer (2012); 131 (5): E769–E780. http://onlinelibrary.wiley.com/doi/10.1002/ijc.27425/full

[French research teams from the Institut National de la Santé et de la Recherche Médicale (INSERM), the Institut de Radioprotection et de Sûreté Nucléaire (IRSN), and the National Register of hematological diseases of children in Villejuif, France, demonstrated that childhood leukemia rates are statistically significantly elevated in children living near nuclear power reactors in France. The study established a clear correlation between the frequency of acute childhood leukemia and proximity to nuclear power stations. The researchers could not identify any other environmental factor besides nuclear plant radiation emissions that could produce the excess cancers. Looking at the period from 2002-2007, the scientists found a doubling of childhood leukemia incidence, with an increase up to 2.2 among children younger than five.]

Sly L and Drisse MNB, Children's Vulnerability to Their Environment, Journal of Environmental Immunology and Toxicology (2013); 1: 58-65. http://www.stmconnect.com/sites/default/files/20140511082359.pdf.

[Article by scientists from Queensland Children's Medical Research Institute, University of Queensland (Australia) and the World Health Organization, Department of Public Health and Environment documenting the overall vulnerability of children to toxic exposures.

Mothers' exposures both prior to conception and during pregnancy are associated with a variety of outcomes, including spontaneous abortion, stillbirth, neonatal death, and birth defects. After birth, the infant can be exposed via the mother's milk.

Children – both prenatally (via the mother) and after birth – are increasingly exposed to chemicals and environmental toxicants, and exposures are occurring at times when organs are forming or maturing, resulting in structural and functional defects that can adversely affect their health.

Children are actively growing, meaning they are in an anabolic state. They breathe more air than adults relative to body size; they have a higher metabolic rate (thereby ingesting more food and water per unit body mass); they have a larger surface to body mass ratio than; and they have longer expected life spans over which illness may develop.

Children are also more exposed via their behavioral interactions with their environment. Infants can be exposed via the mother's milk. Babies and young children crawl, play on the ground, and put things in their mouth. ("Young children are not adverse to eating sand and dirt." p 63.) Thus, there are pathways in which the young are exposed that are not applicable to the adult.

The developing prenatal immune system is vulnerable to exposures (via the mother) at critical time points in development which can affect later health. After birth, prolonged periods of postnatal maturation of organs and systems such as the lungs, brain and immune systems make them vulnerable to environmental exposures. Major events occur in immune system development for instance: initiation of hematopoiesis; migration of stem cells and expansion of progenitor cells; colonization of bone marrow and thymus; and maturation to immunocompetence and the establishment of immune memory. Similarly, the brain and central nervous system develops well into adolescence, and levels of exposure that produce few or no effects on the adult brain may pose serious threats to the developing nervous system.

Humans in utero, during early post natal life, and up to the end of adolescence are especially vulnerable to environmental insults which may have long-term immune, neurological, and developmental consequences. Moreover, low-dose exposures which may yield small statistical risks applicable to the individual child, does not always reflect the broader implications of exposure for the overall population. A mild but chronic impact could add up to a substantial population level burden. Reducing potentially adverse neurodevelopmental impacts on children age 5 and younger should be prioritized.

When setting exposure standards, authorities need to account for the special vulnerability of children, though few do. Authors strongly urge adoption of the Precautionary Principle.]

Solomon, Gina M, MD, MPH, Testimony in Oversight Hearing on Disease Clusters and Environmental Health, Committee on Environment and Public Works, United States Senate, Mar 29, 2011. http://www.nrdc.org/health/files/gsolomon_health_20110329.pdf.

[Gina M. Solomon, MD, MPH, is Senior Scientist at the Natural Resources Defense Council and Director, Occupational and Environmental Medicine Residency Program and Associate Clinical Professor of Medicine, at the University of California, San Francisco. Her testimony is on the inadequacies of research on environmental toxins, the problem of chemical interactions, and the failure of the scheme, overall, to protect the public from toxins. She writes: "The big problem is that the rates of some cancers – including childhood cancers – and other diseases, are rising, so we don't

have the luxury of a lot of time. People are getting sick and suffering, so we need to move quickly and use whatever clues we can to understand what's going on." (p. 6)]

Spang E, A Thirst for Power, University of California, Davis's Center for Water-Energy Efficiency analysis, Feb 27, 2015. http://cwee.ucdavis.edu/research/a-thirst-for-power/.

[Report by Edward Spang of the Center for Water-Energy Efficiency at University of California, Davis, emphasizes the fundamental interrelation between water and energy resource systems.

"Understanding the water demand of energy systems is fundamental to overall national water security, since producing energy requires fresh water. While agriculture dominates water demand in many regions of the world, the energy sector has become a major competitor." Security of a freshwater supply therefore requires reducing the ways energy systems impact water use and supply.

"By benchmarking water consumption for energy to standard measures, policy makers can better understand and track the status of this coupled system," the report notes. It adds, "Just as monitoring greenhouse gas emissions is the first step to transforming energy portfolios to mitigate climate change, improved indicators for water consumption is required to balance the water impacts of long-term energy planning."]

Szumiel, Irena, Ionising radiation-induced oxidative stress, epigenetic changes and genomic instability: the pivotal role of mitochondria, International Journal of Radiation Biology (2014); Abstract. http://informahealthcare.com/doi/abs/10.3109/09553002.2014.934929.

[Review by Irena Szumiel, of the Centre for Radiobiology and Biological Dosimetry, Institute of Nuclear Chemistry and Technology (Warsaw) of the data on the role played by endogenously generated reactive oxygen species (ROS) in producing non-targeted ionizing radiation effects affecting cell populations, both early after exposure and after multiple cell generations.

Conclusion*:* ROS generation by the electron transport chain of the mitochondria and by the cytoplasmic NADPH oxidases result in both short-term and chronic oxidative stress responses.

Whether induction of oxidative stress and its consequences occur in a cell, depends largely on interaction between the nucleus and the cellular population of hundreds or thousands of genetically heterogeneous mitochondria. High intra-mitochondrial ROS levels can damage mitochondrial (mt) DNA, and mtDNA mutations can affect nuclear DNA epigenetic control mechanisms by decreasing the activity of methyltransferases; thus causing global DNA hypomethylation. Changes can be transmitted to the progeny of the irradiated cells. Chronic oxidative stress can cause cancer and other late post-radiation effects.]

Thanan R, Oikawa S, Hiraku Y, Ohnishi S, Ma N, Pinlaor S, Yongvanit P, Kawanishi S, and Murata Mu, Oxidative stress and Its Significant Roles in Neurodegenerative Diseases and Cancer, International Journal of Molecular Sciences (2015); 16 (1): 193-217. http://www.mdpi.com/1422-0067/16/1/193/htm.

[Reactive oxygen and nitrogen species (ROS and RNS) are implicated in diverse pathophysiological conditions, including neurodegenerative diseases, inflammation and cancer. lipids, oxidative stress. Oxidative stress can be induced extrinsically by environmental factors and intrinsically by endogenous factors such as the respiratory bursts from inflammatory cells. Oxidative stress induces disease through the oxidative modification of biomolecules – including proteins, lipids and DNA – and the alteration of signaling pathways leading to dysregulation of cell cycles.

Proteins are mainly functional biomolecules that drive cellular activity and oxidative damage to proteins can lead to protein dysfunction. DNA damage plays a significant role in not just mutation, but in genetic instability and epigenetic changes.

Epigenics, including DNA methylation and histone modification, is a kind of gene regulation system which does not involve genetic sequence change. Typically, DNA hypermethylation at the gene promoter region and histone deacetylation cause gene silencing. While the precise mechanism need to be understood, accumulating evidence suggests oxidative stress is involved in aberrant methylation; both genome-wide DNA hypomethylation and promoter hypermethylation.

Upregulation of inflammatory responses and inflammatory changes are common to aging and many neurodegenerative diseases and cancer. Environmental factors can increase production of ROS and RNS and decrease antioxidant production with increased lipid peroxidation, protein and DNA oxidation. “Oxidative stress induces the formation of lipid peroxidation leading to prolongation of oxidative stress via the propagating chain reaction. Oxidized proteins accumulate in cells via aggregations, protein aggregates caus more mitochondrial damage, and damaged mitochondria can further induce protein damage. Moreover, reactive species damage DNA, which may lead to aberrant cell cycle entry, and further to differential regulation of common genes such as *p53* and *Wnt* in neurodegenerative diseases and cancer.”]

US Department of the Interior, Reclamation – Managing Water in the West: West-Wide Climate Risk Assessment: Upper Rio Grande Impact Assessment, U.S. Department of the Interior, Report of the Bureau of Reclamation, Upper Colorado Region, Dec 2013. http://www.usbr.gov/WaterSMART/wcra/docs/urgia/URGIAMainReport.pdf.

[The US Bureau of Reclamation, which manages much water in the Western US, reports that average temperatures in the upper Rio Grande, in Colorado and New Mexico, rose almost 2.8° degrees in 40 years (ending in 2011). This rate of rise was twice the global average and beyond anything seen in the last 11,300 years. While climate forecasts are inherently uncertain, temperatures in the West may rise an additional 4° to 6° by the century’s end. If this occurs, the Rio Grande could lose roughly a third of its water by 2100.

Climate change has the potential to cause significant environmental harm and dramatically alter hydrology.]

White, Deb, Uranium Mining Expert tours Pine Ridge, Lakota Country Times, Jan 9, 2009. http://www.lakotacountrytimes.com/news/2009-09-01/front_page/004.html.

[Gavin Mudd, PhD, of Australia, a world renowned uranium mining expert, spent several days toured the Pine Ridge Indian Reservation, located 30 miles from the nearest ISL uranium mine, at Crawford, Nebraska. Cameco, Inc. (a Canadian corporation) operates the Crow Butte uranium mine, and

applied to the NRC for an expansion license to open another ISL uranium mine called the North Trend. During his trip, Dr. Mudd met with Lakota people and organizations affected by uranium mining. "'There has never been an In Situ Leach (ISL) uranium mine that has been able to return groundwater to its baseline (pre-mining) water quality,'" according to Dr. Mudd.

Groundwater contamination and other concerns led Owe Aku, Western Nebraska Resource Council, Joe American Horse Tiospaye, the Black Hills Sioux Nation Treaty Council, Beatrice Holy Dance, Debra White Plume, the Oglala Sioux Tribe, Bruce MacIntosh, and the Tom Cook Tiwahe to challenge Cameco's license renewal and expansion to the first of three more uranium mines in Nebraska's panhandle, where Pine Ridge's southern border meets Nebraska. Surface water from the mine area travels to the Pine Ridge, and studies show faults and fractures in the aquifer at the Cameco mine site connect to the drinking water aquifers of the Pine Ridge.

While in the US, Dr. Mudd also met with the Coloradoans Against Resource Destruction, which opposes Powertech, Inc.'s planned ISL uranium mine near Ft Collins.]

White MC, Pelpins LA, Watson M, Trivers KF, Holman DM, and Rodriguez JL, Cancer Prevention for the Next Generation, Journal of Adolescent Health (2013); 56 (5): S1-S7. http://www.sciencedirect.com/science/article/pii/S1054139X13001250.

[Authors from the CDC observe that the number of people with cancer in the US is growing and, during the past decade, rates have increased for all childhood cancers.

Thus primary prevention of cancer remains an urgent public health priority.

Research during the past several decades has vastly changed our understanding of cancer. What was once understood to be a single disease is now understood to comprise distinct types, each of which may have a different etiology. Broadly, cancer development results from a complex interaction of individual, societal, and environmental factors. While the biology is still not completely understood, findings point to multiple cellular pathways by which different cancer risk factors could affect the multistep evolution of normal cells into cancer cells during a person's lifespan. Some researchers, for example, believe cancers like lung cancer and breast cancer may require 5 or 6 steps of development. (Steps can include mutations in oncogenes, mutations in tumor-suppressor genes, and changes that lead to downstream changes in RNA and protein processing.) And recent work into the different intrinsic subtypes of breast cancer has found that one type, basal-like, is characterized by up-regulation of certain proliferation genes and nonexpression of various receptors. Basal-like or triple negative tumors are typically more aggressive, often occur in women younger than age 40, and have a worse prognosis.]

Wines, Michael, Mighty Rio Grande Now a trickle Under Siege, New York Times, Apr 13, 2015. http://www.nytimes.com/2015/04/13/us/mighty-rio-grande-now-a-trickle-under-siege.html.

["From Texas to Arizona to Colorado, the entire West is under siege by changing weather patterns that have shrunk snowpacks, raised temperatures, spurred evaporation and reduced reservoirs to record lows."

As drought worsens, dust and soot from forest fires and parched soil additionally coat snow cover, absorbing sunlight and accelerating snow melt.

A long drought around the 1,900 mile Rio Grande River has dried reservoirs throughout the region. Lake Mead, the Colorado River's main reservoir, is at a historic low.

Drought can spur water-rights disputes between different user groups and states. Experts advise water users to start collaboratively preparing for a much drier future.]

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National Environmental Justice Advisory Committee
U.S. Environmental Protection Agency
Office of Environmental Justice
Mail Code 2201A
1200 Pennsylvania Avenue, NW
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October 5, 2016

RE: NEJAC Public Face to Face Meeting, Oct. 12-13, 2016; Written Comments of Eastern Navajo Diné Against Uranium Mining

Dear NEJAC Committee Members:
On behalf of Eastern Navajo Diné Against Uranium Mining ("ENDAUM") please accept the following written comments for your consideration. ENDAUM is a grassroots group of Diné (Navajo) citizens opposing construction of the Crownpoint Uranium Project, a uranium in situ leach (ISL) mining operation proposed for two sites in the Churchrock Chapter and two in the Crownpoint Chapter of the Navajo Nation. ENDAUM is also a member of the Multicultural Alliance for a Safe Environment ("MASE"), a coalition of community organizations from uranium impacted communities. ENDAUM participates in and supports MASE's activities in uranium impacted communities.
ENDAUM's comments focus on how EPA treats aquifer exemptions under the Safe Drinking Water Act ("SDWA") in indigenous communities and communities of color. Since 1994, ENDAUM has resisted the Crownpoint Uranium Project. ENDAUM rejects any new uranium mining in its members' communities, particularly in light of the ongoing contamination of water and other resources in their communities caused by historic uranium mining and milling. Moreover, the Navajo Nation's 2005 Diné Natural Resources Protection Act bans uranium mining within the Navajo Nation boundaries and the Nation is advocating that the EPA revoke the aquifer exemption. Finally, the Churchrock Chapter has passed a resolution opposing uranium mining within its boundaries.

In 1989, EPA Region 6 granted an aquifer exemption for the Crownpoint Uranium Project under the SDWA. The exemption was issued before the public was aware of the project, and without any meaningful technical scrutiny. By continuing the aquifer exemption, Region 6 has effectively taken the position – in the face of data to the contrary - that that the groundwater beneath the 160 acres of land within the Churchrock Chapter at Section 8, Township 16 North, Range 16 West ("Section 8") is so polluted that it will never be used as a drinking water source. On that basis, Region 6 has reasoned that uranium mining projects should be allowed to pollute scarce groundwater in order to mine uranium using the *in situ* leach (ISL) method.

ENDAUM has repeatedly urged Region 6 of the EPA to revoke the 1989 aquifer exemption for several reasons.

1) First, the aquifer exemption encompasses groundwater that meets EPA's drinking water standards for all contaminants without treatment. The quality of the groundwater at Section 8 is why the Navajo Nation has identified the Westwater Canyon Aquifer in Churchrock as an important future water supply for the Navajo people. Since groundwater quality within the exempted portion of the aquifer is good and suitable as an underground source of drinking water, the EPA's aquifer exemption undermines the Safe Drinking Water Act's very purpose.

Moreover, the EPA's reluctance to reconsider a fundamentally flawed aquifer exemption (see below) in an indigenous community already burdened by the health and environmental impacts of historic uranium development has obvious and far reaching environmental justice implications. Rather than simply write off an entire indigenous community's future drinking water supply, Region 6 should exercise its existing authority under the SDWA to reconsider the Section 8 aquifer exemption.

RECOMMENDATION: ENDAUM urges the NEJAC to recommend that EPA Region 6 formally reconsider the aquifer exemption for Section 8 under its authority provided by the Safe Drinking Water Act in a manner consistent with EPA's *Guidance on Considering Environmental Justice During Development of Regulatory Actions* (May 2015) and *Technical Guidance for Assessing Environmental Justice in Regulatory Analysis* (June 2016).

2) Second, the groundwater quality data upon which EPA Region 6 relied to grant the Section 8 aquifer exemption in 1989 are statistically indefensible and misleading. The aquifer exemption applicant provided the groundwater data upon which the EPA relied in 1989. However, the applicant provided no statistical analysis as required by EPA's guidance for groundwater quality data, and EPA asked for none. Therefore, the groundwater quality data upon which the aquifer exemption is based does not conform to accepted practices; before an important future source of drinking water is irrevocably contaminated, it makes sense to revisit these data and reject them if they cannot stand up to scientific rigor.

Indeed, it is this paucity of scientifically acceptable data combined with stale data that the New Mexico Secretary of the Environment cited in his decision terminating the mining company's state issued underground injection control ("UIC") permit. A copy of that letter is attached as Attachment 1. It is deeply troubling that EPA Region 6 continues to resist reconsidering and

revoking the Section 8 aquifer exemption when the state environment secretary has already acted.

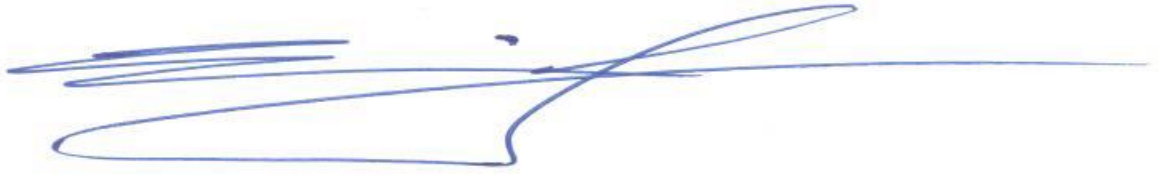
RECOMMENDATION: ENDAUM urges the NEJAC to recommend that EPA Region 6 follow New Mexico's lead and revoke the Section 8 aquifer exemption.

3) Finally, in more than 30 years of operational history, **no** commercial uranium ISL operation has been able to restore groundwater to pre-mining conditions**.** Because contaminants are likely to migrate out of Section 8 into adjacent underground sources of drinking water and is unlikely to ever be restored to pre-mining quality, EPA Region 6's reluctance to reconsider the Section 8 aquifer exemption is tantamount to deliberately sacrificing millions of gallons of potable groundwater that thousands of Diné will ultimately need to live.

RECOMMENDATION: The uranium mining industry's demonstrated failure to remediate groundwater contaminated by ISL mining, the increasing scarcity of water due to global climate disruption, and improved public water system treatment technology are among the many reasons a coalition of national groups and groups from uranium impacted communities have petitioned EPA to change the existing regulations governing aquifer exemptions program. *See*, https://www.nrdc.org/sites/default/files/wat_16032201a.pdf. ENDAUM urges the NEJAC to advise the EPA to accept the citizen petition requesting regulatory amendments to protect underground sources of drinking water and begin a rulemaking immediately.

ENDAUM appreciates the opportunity to submit these comments and thanks the NEJAC for its consideration.

Sincerely,



Eric Jantz
Staff Attorney

COPY

RECEIVED
DEC 15 2015
WQCC

STATE OF NEW MEXICO
BEFORE THE WATER QUALITY CONTROL COMMISSION

IN THE MATTER OF THE PETITION
FOR REVIEW ON DISCHARGE PERMIT 558

WQCC 15-08 (A)

EASTERN NAVAJO DINE AGAINST
URANIUM MINING,

Petitioner.

NOTICE OF DISCHARGE PERMIT- 558 TERMINATION

COMES NOW the New Mexico Environment Department, by and through its counsel Kathryn S. Becker, notices the Water Quality Control Commission of the Termination of DP- 558 issued by Secretary Flynn. The action by the Secretary is provided by law. NMSA 1978, § 74-6-5(M)(3) (2009). The permittee was notified of the action taken and the reasons therefore, correspondence attached. Notice of the Secretary's termination shall also be given by mail to persons who participated in the permitting action and petition for review of DP-558, certificate of service attached. NMSA 1978, § 74-6-5(N) (2009). The Secretary's termination renders ENDAUM's petition to review moot and subject to dismissal by the Water Quality Control Commission.

Respectfully submitted,

NEW MEXICO ENVIRONMENT DEPARTMENT

By: _____

Kathryn S. Becker
Assistant General Counsel
1190 South St. Francis Drive
Santa Fe, New Mexico 87505
Phone: 505-827-2054

CERTIFICATE OF SERVICE

I hereby certify that a true and accurate copy of the foregoing "Notice of Discharge Permit - 558 Termination" was served on the following parties via first-class, postage prepaid, US Mail on December 15, 2015:

Eric Jantz
New Mexico Environmental Law Center
1405 Luisa Street, Ste. 5
Santa Fe, New Mexico 87505

Uranium Resources, Inc.
6950 South Potomac Street
Suite 300
Centennial, Colorado 80112

David A. Taylor
Navajo Nation Department of Justice PO Box 2010
Window Rock, Navajo Nation (AZ) 86515

Susan Gordon, Coordinator
Multicultural Alliance for a Safe Environment PO Box 4524
Albuquerque, New Mexico 87196

Wade Jackson, General Counsel
New Mexico Economic Development Department
Joseph Montoya Building
1100 South Saint Francis Drive
Santa Fe, New Mexico 87505

Kathryn S. Becker

State of New Mexico
ENVIRONMENT DEPARTMENT

Office of the Secretary

Harold Runnels Building
1190 Saint Francis Drive, PO Box 5469
Santa Fe, NM 87502-5469
Telephone (505) 827-2855 Fax (505) 827-2836
www.env.nm.gov

SUSANA MARTINEZ
Governor

JOHN A. SANCHEZ
Lieutenant Governor

RYAN FLYNN
Cabinet Secretary

BUTCH TONGATE
Deputy Secretary

Via Certified Mail

December 15, 2015

Christopher M. Jones
President & Chief Executive Officer
Hydro Resources, Inc.
6950 S. Potomac Street
Suite 300
Centennial, Colorado 80112

Re: Termination of Groundwater Quality Bureau DP-558

Mr. Jones:

On October 7, 2015, the New Mexico Environment Department's Groundwater Quality Bureau ("Bureau") renewed groundwater discharge permit number 558 ("DP-558"). As you are aware, this permit renewal took nearly two decades to complete due to a variety of different issues, including a number of federal and state lawsuits. However, no amount of litigation justifies the Bureau taking this long to make a decision. This delay reflects poorly on the Bureau and ultimately the Environment Department. Unfortunately, the Bureau's renewal of DP-558 did not comply with the groundwater permitting regulations promulgated by the Water Quality Control Commission (WQCC). Therefore, I am hereby exercising my authority under NMSA 1978, §74-6-5(M)(3) to terminate DP-558 and instructing Hydro Resources Inc., (HRI) to apply for a new discharge permit.

Pursuant to the Water Quality Act, a permit may be terminated by the constituent agency that issued the permit prior to its date of expiration if the permit will violate any provisions of the Water Quality Act or any applicable regulations, standards of performance or water quality standards. N.M. Stat. Ann. § 74-6-5 (M)(3). Here, I have determined DP-558 does not comply with 20.6.2.7(Q) NMAC and, therefore, should not have been renewed. Pursuant to 20.6.2.7(Q) NMAC, a "discharge permit renewal" means "the re-issuance of a discharge permit for the same, previously permitted discharge." DP-558, as originally issued in 1989, authorized discharges to groundwater associated with *in-situ* uranium mining. However, no *in-situ* mining has ever occurred under DP-558 and the WQCC lowered the groundwater quality standard for uranium from 5 mg/l to 0.03mg/l in 2004. The most recent permit renewal application HRI submitted to

the Bureau for DP-558 sought to maintain the authorization for same, previously permitted discharge authorized in the 1989 permit. However, the permit issued by the Bureau on October 7, 2015, expressly prohibits any operational discharges, making the permit the Bureau actually approved to be completely different from the permit HRI requested in its renewal application. In this case, I believe the appropriate course of action would have been for the Department to terminate DP-558 at some point after the groundwater quality standard for uranium was lowered and require HRI to submit a new permit application to address the change in standard. Unfortunately, this did not occur and the Bureau attempted to modify the permit through the renewal process (which is appropriate), but in doing so issued a renewal that was completely different from the previously permitted discharge (which does not comply with WQCC regulations). Because the Bureau's decision did not comply with 20.6.2.7(Q) NMAC, I am hereby exercising my authority under NMSA 1978, §74-6-5(M)(3) to terminate DP-558.

While I have determined the Bureau should not have "renewed" HRI's discharge permit in October, I believe the activities authorized in the permit are necessary and important for HRI to complete. While HRI does not need a discharge permit to gather this data under WQCC regulations, the Department will promptly consider a new discharge permit application structured similar to what was issued in October as soon as HRI is ready to submit a completed permit application. In the alternative, HRI may choose to complete the necessary activities in order to obtain a discharge permit for operational discharges from its *in-situ* mining operation in accordance with the water quality standards and submit a discharge permit application when it is ready to do so.

If you have questions or concerns, please contact the Water Protection Division Director, Trais Kliphuis at (505) 827-1758.

Yours truly,

Ryan Flynn

CC: Trais Kliphuis, Water Protection Division Director
Kurt Vollbrecht, GWQB
Kathryn S. Becker, OGC

Shawn Garvin
Region 3 Administrator
U.S. Environmental Protection Agency Region 3 Office
1650 Arch Street
Philadelphia, PA 19103-2029

October 5, 2016

Dear Mr. Garvin,

We are writing to you today to express our organizations' support for establishing an Environmental Justice Leadership Academy in EPA Region 3. As organizations conducting work on environmental issues in the region, we have come together to recognize the importance of environmental justice, which has neither in the past nor today been given its due amount of attention.

We applaud the inaugural class of 21 graduates from the Environmental Justice Academy and celebrate that these community leaders have had the opportunity to cultivate leadership skills to enable them to stand up with their communities for environmental equity and justice. The existence of the Environmental Justice Academy shows EPA's commitment to vulnerable communities. Building skills such as capacity-building, achieving consensus and resource management are vital not only to the success of environmental justice work happening within EPA Region 4, but outside of that region as well.

If implemented inclusively, the EPA Environmental Justice Leadership Academy can be an opportunity for budding environmental justice leaders in EPA Region 3 to also gain vital skills and knowledge. As EPA Region 4 has already developed a curriculum, it can serve as a strong example for EPA Region 3 by sharing resources and potentially opening up sessions to attend via interactive video or live-streaming. Encouraging and strengthening community leaders in EPA Region 3 will build our communities' capacity in addition to social, intellectual and financial capital and resources. Embracing all communities is essential to tackling the scale of environmental crises we are facing today.

We implore you to deliver to the children, families and communities of EPA Region 3 an Environmental Justice Leadership Academy. Full transportation scholarships should be provided to participants and EPA should arrange to have experienced environmental justice leaders serve as some of the experts. Working together across neighborhoods, communities, states and regions is the only way to achieve EPA's mission of "all Americans [being] protected from significant risks to human health and the environment where they live, learn and work".

Sincerely,

Kendyl Crawford
Conservation Program Manager
Virginia Chapter Sierra Club
VA

Dr. Erica Holloman
Program Director
Southeast CARE Coalition
VA

Josie R. Mace
Policy Associate
New Virginia Majority
VA

Zakia Shabazz
Executive Director
United Parents Against Lead
VA

Kate Boyle
Director of Campaigns
Appalachian Voices
VA

Hope Cupit
Chief Executive Officer
Southeast Rural Community Assistance Project
VA

Shantha Alonso
Executive Director
Creation Justice Ministries
VA, DE, MD, PA, WV

Russell Zerbo
Advocacy Coordinator
Clean Air Council
PA

Joelle Novey
Director
Interfaith Power & Light DMV
DC, MD, VA

Carol Parenzan
Riverkeeper and Executive Director
Middle Susquehanna Riverkeeper Association, Inc.
PA

Rev. Alison Cornish
Executive Director
Pennsylvania Interfaith Power & Light
PA

Mike Tidwell
Director
Chesapeake Climate Action Network
VA, DC, MD

Brian Ditzler
Co-Chair
Maryland Chapter Sierra Club
MD

Rev. Dr. Faith Harris
Vice Chair
Virginia Interfaith Power & Light
VA

Gary Zuckett
Executive Director
West Virginia Citizen Action Group
WV

Ladelle McWhorter
Chairperson
Virginia Organizing
VA

Rebecca Rehr
Public Health Advocacy Coordinator

Maryland Environmental Health Network
MD
Gary Zuckett
Executive Director
West Virginia Citizen Action Group
WV

Stephanie Herron
Volunteer & Outreach Coordinator
Delaware Chapter Sierra Club
DE

Frederick Tutman
Chief Executive Officer
Patuxent Riverkeeper
MD

Ronda Hamilton
Youth Coordinator
Syphax Gardens Resident Council
DC

Kari Fulton
Environmental Justice Program Organizer
Empower DC
DC

Reba Elliott
Executive Director
Faith Alliance for Climate Solutions
VA

Alaura Carter (Individual)
Climate Justice Associate
Sojourners
DC

Darius Stanton (Individual)
CRC Diversity Implementation Staff
Chesapeake Research Consortium
VA, DC, DE, MD, PA, WV

October 4, 2016

Chairman Richard Moore
National Environmental Justice Advisory Council
Office of Environmental Justice
U.S. Environmental Protection Agency [Mail Code 2201A]
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Submitted electronically via:
Richard Moore, NEJAC Chair, ljinewmexico@gmail.com
Matthew Tejada, Designated Federal Officer, Tejada.Matthew@epa.gov
Karen L. Martin, NEJAC Program Manager, Martin.Karenl@epa.gov

Dear Chairman Moore and Members of the National Environmental Justice Advisory Council:

As farmworker and farmworker advocacy organizations, we are writing to encourage the National Environmental Justice Advisory Council (NEJAC) to assist in protecting environmental justice communities of farmworkers and their families from exposure to toxic pesticides by supporting a robust implementation and enforcement of the 2015 revised Agricultural Worker Protection Standard (WPS).

We applaud the Environmental Protection Agency's (EPA's) work to adopt these strengthened regulations, and encourage the Agency to continue to oppose attempts by Congress to weaken this important standard which was adopted after many years of research, deliberation and extensive public comment.

It is critical that these stronger regulations are fully and effectively implemented, which requires the direct involvement of farmworkers and their communities in several critical areas.

Among the most important provisions in the revised WPS is the requirement for annual training of farmworkers on a broader range of pesticide hazard protection topics, including their rights to file pesticide safety complaints. The EPA has already awarded large contracts for the development of training materials and programs. The importance of this provision cannot be overstated.

Our recommendation to the Agency is that:

- All materials and programs should be developed using best practices for public and occupational health education, including direct constituency involvement in the creation of materials and programs, and pilot testing with farmworkers before finalization;
- Resources be committed to actively involve farmworkers in the development and pilot testing of training materials and programs to assure that these are understandable and effective in practice, and are culturally and linguistically appropriate;
- Regional meetings be convened to solicit input directly from farmworkers;

- Farmworker-based organizations should be contracted to conduct focus groups of farmworkers to review and revise materials under development.

The issue of workers' rights under the WPS should be a primary feature of any new outreach and training materials. In particular, workers should be fully informed about how to report a violation of their rights and protections in their state, that they have a right to receive information about the pesticides applied in their workplace, and that they have the right to designate someone to request and receive information about the pesticides they were exposed to during the previous two years. The designated representative provision of the new WPS has been challenged. Hence, this new provision under the WPS must be clearly understood by state enforcement agencies, and there must be a concerted effort by EPA to ensure that states are clear on the parameters of this regulation and that they have a plan for adequate enforcement and protection of this right of the workers.

The WPS' Application Exclusion Zones (AEZs) provision, designed to protect from exposure anyone within an area immediately surrounding the site of an application as it is being conducted, is also essential. We urge the NEJAC to recommend the Administration take the necessary steps to ensure the states fully implement and effectively enforce the WPS's AEZ requirements in order to protect farmworkers, their families and rural communities from exposure during pesticide applications.

Specifically, we recommend that:

- EPA require that states apply these protections to workers and their families within housing, child care centers or other structures within an AEZ;
- Before implementing any policy advising farmworkers or other individuals to shelter within their housing during a pesticide application as a means to avoid exposure, EPA must assess the safety and feasibility of such a policy compared to alternatives.

Finally, in order to facilitate adequate enforcement of the WPS, EPA must ensure that state enforcement agencies have established procedures for receiving and investigating WPS complaints, and that such procedures are clearly communicated to farmworkers and farmworker service providers. A well-established procedure should be required for states to receive EPA funding for enforcement.

The NEJAC is strategically placed to bring these critical environmental justice issues, which for too long have not been on the Agency's radar screen, to the attention of the EPA Administrator and to the Agency so that the voices of the otherwise voiceless in rural agricultural communities around the country can be heard at some of the highest levels of decision making on environmental justice issues.

In conformance with the NEJAC's mandate and on behalf of disproportionately affected farmworker environmental justice communities around the country, we urge you to make the recommendations listed above to the Administrator on behalf of the Council to ensure that this long-awaited and important new regulation is effectively implemented, and the health and wellbeing of farmworkers and their families are truly protected. Any follow-up questions about the letter should be directed to NEJAC member Mily Trevino-Saucedo.

Thank you very much.

Sincerely,

Agricultural Justice Project
ALBA - Agriculture and Land-Based Training Association, California
Alianza Nacional de Campesinas, Inc.
Border Agricultural Workers Project, Texas
California Rural Legal Assistance Foundation, California
Campesinos Sin Fronteras, Arizona
CATA - El Comite de Apoyo a los Trabajadores Agricolas/The Farmworker Support Committee, New Jersey
Centro Binacional para el Desarrollo Indígena Oaxaqueño (Binational Center for the Development of Oaxacan Indigenous Communities), California y Mexico
Centro de los Derechos del Migrante, Inc. (CDM), U.S. y Mexico
Columbia Legal Services, Washington
Earthjustice
East Coast Migrant Head Start Project, North Carolina
Farmworker Advocacy Network, North Carolina
Farmworker Association of Florida, Florida
Farmworker Justice, Washington, DC
Farmworker Self-Help, Florida
Global Workers Justice Alliance, New York
Greater Rochester Coalition for Immigration Justice, New York
Kids for College, New York
Migrant Clinicians Network
MICOP – Mixteco/Indigena Community Organizing Project, California
Migrant Farmworker Justice Project, Florida Legal Services, Florida
Mujeres Campesinas Unidas de Florida
Multicultural Efforts to End Sexual Assault (MESA)
National Farm Worker Ministry
North Carolina Justice Center, North Carolina
Organización en California de Líderes Campesinas, Inc., California
Pesticide Action Network North America, California
Pineros y Campesinos Unidos del Noroeste, Oregon
Student Action with Farmworkers, North Carolina
Toxic Free North Carolina, North Carolina
United Farm Workers
Wayne Action for Racial Equality, Sodus, New York
Worker Justice Center, New York
Youth and Young Adult Network – National Farm Worker Ministry

October 5, 2016

Chairman Richard Moore
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 Chairman Moore and Members of the National Environmental Justice Council:

As a representative of a 30-year-old organization that continues to work on the elimination of pesticides in our bodies and in our environment, I wanted to offer support to the letter submitted concerning the need for proper implementation of the revised Worker Protection Standards (WPS). North Carolina runs an $84 billion agricultural industry, employing an estimated 120,000 farmworkers every year across the state in crops ranging from corn, to soy, to Christmas trees. Many of these operations have incorporated heavy chemical use into their farm plans, and a significant amount of workers are exposed to pesticides every growing season. While the will is not there to eliminate these chemicals from agricultural production yet, there is an immense opportunity to protect the workers that are imperative to our food production, but often have the least amount of recourse when exposed to these dangerous chemicals.

I would like to reiterate that our organization applauds the Environmental Protection Agency's (EPA) work to adopt these strengthened rules and their commitment to implementing them in a timely manner. However, these new rules will not have the impact that was intended unless there is proper enforcement and inclusive development of materials. It is essential that those impacted by these new rules be included in the process of development of materials, as they can best explain how these provision will work out in real world situations.

Toxic Free NC recommends:

- All materials and programs should be developed using best practices for public and occupational health education, including direct constituency involvement in the creation of materials and programs, and pilot testing with farmworkers before finalization;
- Resources be committed to actively involve farmworkers in the development and pilot testing of training materials and programs to assure that these are understandable and effective in practice, and are culturally and linguistically appropriate;
- Regional meetings be convened to solicit input directly from farmworkers;
- Farmworker-based organizations should be contracted to conduct focus groups of farmworkers to review and revise materials under development.

Toxic Free NC would also like to reiterate the importance of the designated representative provision as it represents not only a worker's right to know what they have been exposed to, but can quickly become a medical emergency as symptoms can arise later after migrant workers have returned to their homes. This is a common occurrence in our organization's state of North Carolina where we have an entire unit in our Legal Aid offices devoted to

TOXIC FREE NC
115 South St. Mary's St., Suite D • Raleigh, NC 27603 • (919) 833-5333 • www.toxicfreenc.org

helping farmworkers. I have discussed many accounts of this information becoming necessary with attorneys from Legal Aid of North Carolina who try to obtain records to no avail from growers when representing clients that have returned to other countries. The benefits, and ultimately rights, far outweigh any "ill-intent" that might be conceived by deceptive practices as outlined as a point of concern by growers opposed to the designated representative provision. This is simply a human right issue. These provisions must be protected, implemented, and enforced.

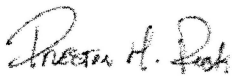
Another aspect of the revised WPS that is crucial to the protection of workers is the Application Exclusion Zone (AEZ) provision. This rule mandates that application cannot proceed with those within a given radius of application equipment when pesticides are being applied. However, in North Carolina, we have heard from state enforcement officials that investigation initiation will only be complaint driven with no random inspections for compliance with AEZs. This is concerning because it does not take proactive measure to ensure that farmworkers, their families, or other rural community members are not being sprayed with pesticides when they are unaware (e.g. sleeping, indoors, etc.).

Toxic Free NC reiterates the recommendation that:

- EPA require that states apply these protections to workers and their families within housing, child care centers or other structures within an AEZ;
- Before implementing any policy advising farmworkers or other individuals to shelter within their housing during a pesticide application as a means to avoid exposure, EPA must assess the safety and feasibility of such a policy compared to alternatives.

All revisions to the WPS are extremely important and, if properly enforced, can decrease pesticide exposure for disproportionately affected communities. As NEJAC members your commitment to this issues, and other issues relating to environmental justice, is obvious. Thank you for that commitment. I, on behalf of Toxic Free NC, and numerous other farmworker advocacy organizations throughout North Carolina, now implore you to convey these important recommendations to the Administrator on behalf of the Council as we all strive to protect the health and safety of those so imperative to our food system.

Thank you,



Preston H. Peck, Policy Advocate

Toxic Free NC
115 South Saint Mary's Street
Suite D
Raleigh, NC 27603

October 5th, 2016

Chair, National Environmental Justice Advisory Council
Office of Environmental Justice
U.S. Environmental Protection Agency [Mail Code 2201A]
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Submitted electronically via:
Matthew Tejada, Designated Federal Officer, Tejada.Matthew@epa.gov
Karen L. Martin, NEJAC Program Manager, martin.karenl@epa.gov

Dear Chairman and Members of the National Environmental Justice Advisory Council:

Worker Justice Center of New York pursues justice for those denied human rights with a focus on agricultural and other low wage workers, through legal representation, community empowerment and advocacy for institutional change. For more than 30 years our organization has been working to improve working conditions and to educate workers about their rights. Our Health and Safety project trained more than 6000 agricultural workers in occupational safety including pesticides and the Worker protection Standard.

As a farmworker advocacy organization, we are writing to encourage the NEJAC to assist in protecting environmental justice communities of farmworkers and their families from exposure to toxic pesticides by supporting a robust implementation and enforcement of the 2015 issued revised Agricultural Worker Protection Standard (WPS).

We applaud the Environmental Protection Agency's (EPA's) work to adopt these strengthened regulations, and encourage the Agency to continue to oppose attempts by Congress to weaken this important standard which was adopted after many years of research,deliberation and extensive public comment.

It is critical that these stronger regulations are fully and effectively implemented, which requires the direct involvement of farmworkers and their communities in several critical areas.

Among the most important provisions in the revised WPS is the requirement for annual training of farmworkers on a broader range of pesticide hazard protection topics, including the right to file a pesticide safety complaint and to receive the training and services in a language that workers understand. The EPA has already awarded large contracts for the development of training materials and programs. The importance of this provision cannot be overstated.

Our recommendation to the Agency is that:

- All materials and programs should be developed using best practices for public and occupational health education, including direct constituency involvement in the creation

of materials and programs, and pilot testing with farmworkers before finalization, methodologies like popular education should be prioritized;

- Resources be committed to actively involve farmworkers in the development and pilot testing of training materials and programs to assure that these are understandable and effective in practice, and are culturally and linguistically appropriate;
- Regional meetings to be convened to solicit input directly from farmworkers and farmworker advocates;
- Farmworker-based organizations should be contracted to conduct focus groups of farmworkers to review and revise materials under development.

The issue of workers' rights under the WPS should be a primary feature of any new outreach and training materials. In particular, workers should be fully informed about how to report a violation of their rights and protections in their state, that they have a right to receive information about the pesticides applied in their workplace, and that they have the right to designate someone to request and receive information about the pesticides they were exposed to during the previous two years.The designated representative provision of the new WPS has been challenged. Hence, this new provision under the WPS must be clearly understood by state enforcement agencies, and there must be a concerted effort by EPA to ensure that states are clear on the parameters of this regulation and that they have a plan for adequate enforcement and protection of this right of the workers.

The WPS' Application Exclusion Zones (AEZs) provision, designed to protect from exposure anyone within an area immediately surrounding the site of an application as it is being conducted, is also essential. We urge the NEJAC to recommend the administration take the necessary steps to ensure the states fully implement and effectively enforce the WPS's AEZ requirements in order to protect farmworkers, their families and rural communities from exposure during pesticide applications.

Specifically, we recommend that:

- EPA require that states apply these protections to workers and their families within housing, child care centers or other structures within an AEZ;
- Before implementing any policy advising farmworkers or other individuals to shelter within their housing during a pesticide application as a means to avoid exposure, EPA must assess the safety and feasibility of such a policy compared to alternatives.

Finally, in order to facilitate adequate enforcement of the WPS, EPA must ensure that state enforcement agencies have established procedures for receiving and investigating WPS complaints, and that such procedures are clearly communicated to farmworkers and farmworker service providers. A well-established procedure should be required for states to receive EPA funding for enforcement.

EPA and state agencies need training in the new regulations and resources to make the enforcement of the WPS regulations possible. Bilingual or multilingual inspectors are extremely important for the agencies to effectively communicate with agricultural workers when they make a complaint or need information about the regulations. If bilingual inspector are not available, there must be resources available to comply with federal and state language access regulations to provide competent translation and in person interpretation.

The NEJAC is strategically placed to bring these critical environmental justice issues, which for too long have not been on the Agency's radar screen, to the attention of the EPA Administrator and to the Agency so that the voices of the otherwise voiceless in rural agricultural communities around the country can be heard at some of the highest levels of decision making on environmental justice issues.

In conformance with the NEJAC's mandate and on behalf of the farmworker community and advocates of the State of New York we urge you to make the recommendations listed above to the Administrator on behalf of the Council to ensure that this long-awaited and important new regulation is effectively implemented, and the health and wellbeing of farmworkers and their families are truly protected.

Thank you very much.

Sincerely,

Paola Macas Betchart
Workplace Health and Safety Project
Worker Justice Center of New York

Name: Alexandra Beer
Organization/Community: Headwaters, Inc./ Letcher County, Kentucky
City and State: Whitesburg, KY
Telephone: 937-657-5780
Email Address: alex@kyheadwaters.org

I am submitting a written comment to the National Environmental Justice Advisory Council on behalf of Headwaters, a community watershed group located in Letcher County, Kentucky. Letcher County is in the coal fields of southeastern Kentucky and is part of one of the poorest congressional districts in the country. Almost a third of the county's 23,123 residents live below the poverty threshold. Along with these socioeconomic circumstances, there are watershed and water quality impairments that further disadvantage and create hardship for local communities. People do not have access to safe drinking water; there is failing, and in some areas of the county, complete lack of sewer infrastructure and waste water treatment; high levels of metals are pervasive throughout area streams; and storm water runoff, sedimentation, and siltation further impair waterways.

In detailing the local environmental justice issues related to water, I am hoping to make NEJAC and the USEPA aware of water quality issues in Appalachian Kentucky and offer suggestions in regard to community needs and how NEJAC can advise EPA to better serve rural communities burdened with environmental harms.

Rural EJ communities need greater access to funding for environmental mitigation. Yes, there are unlimited grant opportunities and low interest loans for environmental work; however, EJ communities, and especially rural EJ communities, often times lack the resources and technical expertise needed to complete and submit competitive applications for such funding opportunities. An example of available but inaccessible source of funding would be state revolving funds. This funding for watershed restoration is nearly impossible for communities that do not have experienced professionals working on their behalf. As well-understood by members of NEJAC, communities burden by environmental justice concerns are often times under-represented and under-resourced. Efforts to address environmental harms must go beyond offering inaccessible grants.

In areas, like Letcher County, industry and the state have failed to uphold environmental regulations and standards in order to maintain environmental quality for the wellbeing of people living in the area. Industry and the state have failed the community. It should not be left to community members burdened with environmental harm to now, develop the know-how and leverage the support and resources necessary to apply for competitive grants to address basic needs such as sewer and access to safe drinking water.

Going forward NEJAC should advise the EPA to do further engage and work with EJ communities who do not have the resources, expertise, or representation to create awareness or take action regarding environmental harms.

From: EJ NWI [mailto:ejofnwi@gmail.com]
Sent: Wednesday, October 05, 2016 5:18 PM
To: Martin, KarenL <Martin.KarenL@epa.gov>
Subject: NEJAC Public Comments - submitted by Environmental Justice of NWI

Good morning member of NEJAC, EPA employees

My name is Mary Irizarry and I am the President of Northwest Indiana Environmental Justice Group. I have several concerns but will brief.

I am a second generation resident of Zone 3 of the USS Lead Superfund site in East Chicago, In. I have lived there for over 40 years. I am not going to rehash what you have read on social media or online. I am going to tell you what's not being covered. There is a dirt mound sitting behind the housing complex in Zone 1 of dirt excavated from properties in 2008. I would like to see that soil disposed of properly.

The homes in Zone 3 were built upon dunes and swales that were backfilled to allow construction of homes upon that land. I am deeply concerned about the lateral migration of toxins due to this fact. Especially if the roads and sidewalks are not removed and the soil beneath them remediated.

There was a facility across from the site that used to recycle aluminum and also was discovered in 2003 to have bags of lead dust just left laying around. Those toxins not only blew into our neighborhoods but that area has not been tested for further contamination.

We also have a company that handles hazardous waste, Tradebe, that has been out of compliance and under Serious Violation for the past 3 years. I would like to see them brought into compliance prior to their proposed expansion. My neighborhood sits surrounded by industry, Praxair, Arcelor Mittal, Buckeye Petroleum, Citgo Petroleum, just to name a few. I would like to ensure that these companies are practicing the safest processes they can to mitigate any further contamination to the area.

Finally, areas that are above 400ppm are being remediated. I understand that but I don't agree with it. What are the effects of long term exposure to lead levels under that threshhold? I also have concerns with families being relocated moving their furniture and other porous items. Are they just transporting the toxins with them?

These neighborhoods exist in a food desert. There are too many residents who do not have transportation and access to the fresh fruits and vegetables that will assist with lessening the effects of the exposure to these toxins. Therefore it is imperative that this issue also be addressed.

Therefore, I respectfully recommend the following:

1. That the EPA use its authority to add the above mentioned sites to the National Priorities List (NPL) to protect the citizens in Northwest Indiana. Tradebe, Arcelor Mittal, BP, Buckeye Petroleum and Praxair.
2. That EPA uses its authority under the Clean Air Act to reduce or eliminate these catastrophic risks, where feasible, by issuing new rules and guidance. This action would reduce the danger and imminent threat that refineries and other polluting facilities have on people like me who live in Calumet and have been exposed.
3. Create a set of relocation parameters that include : any property currently reading above 2500 ppm.

Once again, thank you for this opportunity to listen to my concerns regarding environmental justice issues in my area.

Sincerely,

Mary Irizarry