Status of Tribal Air Report

June 2020

NTAA

NATIONAL TRIBAL AIR ASSOCIATION

Top row, left to right: Kootenai Tribe of Idaho air station, Bonners Ferry, Idaho; Twenty-Nine Palms Band of Mission Indians' air quality monitoring station, Coachella, California.

Middle row, left to right: Ute Mountain Ute Tribe's air quality station, Towaoc, Colorado; White Mountain Apache Timber Company site; Coeur d'Alene Tribe's air monitoring station.

Bottom row, left to right: Bishop Paiute Tribe's Air Quality Program's balloon launch with the National Weather Service; Shoshone-Bannock Tribe's primary site; Fond du Lac's air monitoring station.

The National Tribal Air Association is funded through a grant from the United States Environmental Protection Agency's Office of Air & Radiation (OAR)

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NTAA
NATIONAL TRIBAL AIR ASSOCIATION

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Acronyms

ACE	Affordable Clean Energy Rule
AI/AN	American Indian/Alaska Native
AICAF	American Indian Cancer Foundation
AIEO	American Indian Environmental Office
ALA	American Lung Association
AMoN	Ammonia Monitoring Network
ANTHC	Alaska Native Tribal Health Consortium
AQ	Air Quality
AQCP	Air Quality Control Program
AQP	Air Quality Program
AQS	Air Quality System
ARA	Air Resource Advisor
ATSDR	Agency for Toxic Substances and Disease Registry
BACT	Best Available Control Technology
BAM	Beta Attenuation Monitor
BBCR	Black Bear Casino Resort
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BLR	Blue Lake Rancheria
CAA	Clean Air Act
CAAAC	Clean Air Act Advisory Committee
CARB	California Air Resources Board
CASTNET	Clean Air Status and Trends Network
CDC	Center for Disease Control
CIP	Conservation Incentive Program
COLA	Cost-of-Living Adjustment
COPD	Chronic Obstructive Pulmonary Disease
CRCPD	Confederation of Radiation Control Program Directors
CRST	Cheyenne River Sioux Tribe
CTI	Cleaner Trucks Initiative
DERA	Diesel Emissions Reduction Act
DOJ	Department of Justice
DWMRC	Division of Waste Management and Radiation Control
EA	Environmental Assessment
EFRI	Energy Fuels Resources Incorporated
EGU	Electric Utility Generating Units
EI	Emissions Inventory
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EPD	Environmental Programs Department
FARR	Federal Air Rules for Reservations (for Region 10 only)
FDA	Food and Drug Administration
FEM	Federal Equivalent Method
FEMA	Federal Emergency Management Agency
FIP	Federal Implementation Plan
FRM	Federal Reference Method

FTWC	Flanged Tritium Waste Containers
GAP	General Assistance Program
GHG	Greenhouse Gas
HAP	Hazardous Air Pollutant
HHS	Health and Human Services
HIA	Health Impact Assessment
HPBA	Health, Patio and Barbeque Association
HSU	Humbolt State University
HUD	Housing and Urban Development
HVAC	Heating, Ventilation, and Air Conditioning
IAQ	Indoor Air Quality
IAQWG	Indoor Air Quality Work Group
ICS	Incident Command System
IPCC	Intergovernmental Panel on Climate Change
IPP	Inventory Preparation Plan
ITEP	Institute for Tribal Environmental Professionals
KCA	Klawock Cooperative Association
KDHE	Kansas Department of Health and Environment
LANL	Los Alamos National Laboratories
MACT	Maximum Achievable Control Technology
MPCA	Minnesota Pollution Control Agency
MSWG	Mobile Sources Work Group
NAA	Non-attainment Area
NAAQS	National Ambient Air Quality Standards
NADP	National Atmospheric Deposition Program
NATA	National Air Toxics Assessment
NAU	Northern Arizona University
NCA4	Fourth National Climate Assessment
NEI	National Emissions Inventory
NESHAP	National Emission Standards for Hazardous Air Pollutants
NGO	Non-Governmental Organization
NHBP	Nottawaseppi Huron Band of the Potawatomi
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NSR	New Source Review
NSPS	New Source Performance Standards
NTAA	National Tribal Air Association
NTF	National Tribal Forum on Air Quality
NTFAQ	National Tribal Forum on Air Quality
NWS	National Weather Service
OAP	Office of Atmospheric Programs
OAQPS	Office of Air Planning and Standards
OAR	Office of Air and Radiation
OCD	Okanogan Conservation District
OECA	Office of Enforcement and Compliance Assurance
OGAP	Office of Global Affairs and Policy
OIE	Office of Indian Energy
OITA	Office of International and Tribal Affairs
OMIS	Office of Management and International Services

ORAP	Okanogan River Airshed Partnership
ORBA	Office of Regional and Bilateral Affairs
ORIA	Office of Radiation and Indoor Air
OTAQ	Office of Transportation and Air Quality
OTS	OAR Tribal System
PBPN	Prairie Band Potawatomi Nation
PM	Particulate matter
PRK	Policy Response Kits
PSD	Prevention of Significant Deterioration
PSE	Policy, Systems, and Environmental
PSPS	Public Safety Power Shutoff
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RARE	Regional Applied Research Effort
RCEA	Redwood Coast Energy Authority
RTR	Risk and Technology Review
SAFE	Safer Affordable Fuel-Efficient
SEP	Supplemental Environmental Projects
SERC	Schatz Energy Research Center
SIRG	State Indoor Radon Grants
SMP	Smoke Management Plan
STAG	State and Tribal Assistance Grant
STAR	Status of Tribal Air Report
TAC	Tribal Advisory Council
TAMS	Tribal Air Monitoring Support Center
TAR	Tribal Authority Rule
TAS	Treatment in the Same Manner as a State
TDWG	Tribal Data Work Group
TEISS	Tribal Emissions Inventory Software Solution
TIP	Tribal Implementation Plan
TK	Traditional Knowledges
UMUT	Ute Mountain Ute Tribe
USGCRP	U.S. Global Change Research Program
VOC	Volatile Organic Compounds
VW	Volkswagen
WADOE	Washington State Department of Ecology
WSWG	Wood Smoke Work Group

Section 1. Executive Summary

1.1 Welcome from the NTAA Chairman

On behalf of the National Tribal Air Association's (NTAA) Executive Committee, I am pleased to present the 2020 Status of Tribal Air Report (STAR). As the NTAA Chairman and the Primary Representative of EPA's Region 9 Tribal Caucus on the NTAA's Executive Committee, I work to ensure that NTAA helps to empower Tribes to protect and enhance the air that we all breathe.

Since the publication of the 2019 STAR, Tribes have experienced great uncertainty. Several Tribes had their computer systems hacked, others experienced extreme air impacts or loss of electricity from wildfires, threats of another government shutdown resolved with flatlined air budgets, and now we are all experiencing systemic disruptions due to COVID-19. The National Tribal Forum on Air Quality – where Tribes and EPA gather annually to share knowledge on protecting air quality, and where this report is typically presented – was cancelled due to travel restrictions to protect against the transmission of COVID-19. Tribal air program staff have been (at best) required to work from home, where they may or may not have adequate internet capabilities, and (at worst) furloughed or had their positions terminated.

Both EPA and Tribal air programs are losing staff to retirement or assignment changes. The retirement or loss of key EPA staff in the coming near future for Laura McKelvey (OAQPS Tribal Coordinator), Farshid Farsi (TAMS Center Co-Director), and Monika Lacka (EPA Life Scientist and Region 5's Lead Tribal Air Coordinator) to cite a few examples (see *Section 3.9 Tributes to Retiring EPA Staff Members*), will lead to a significant loss of institutional knowledge and understanding within EPA of not only the importance of Tribal air programs but also how to effectively work with Tribes. It is imperative that EPA maintain and fill these key positions when the time arises. Funding for Tribal air programs has long been a limiting factor, and despite the modest increase for FY2020 in comparison to FY2019, Tribal air programs or Tribes that seek to develop air programs continue to have unmet needs (see *Appendix A: NTAA Tribal Air Quality Budget Analysis*, for an in-depth report and recommendations).

And yet, Tribes continue to protect air quality for their people, their airsheds, and their non-human relatives. Tribes have been practicing resiliency for thousands of years, and will continue to persevere.

The NTAA is here, in part, to support that perseverance. Membership continues to grow immensely: this year alone eleven Tribes have joined the NTAA, bringing the total number of Member Tribes to 151. As the second largest, national Tribal membership-based organization, this significant growth in membership over the past five years (approximately 75% since January 2015) demonstrates the important role the NTAA plays in supporting Tribes, Tribal air quality programs, and air quality policy analysis.

The NTAA achieves its mission through hosting work groups (currently: Mobile Sources, Indoor Air Quality, and Wood Smoke, *see Sections 3.4 and 3.2 for updates from those work groups*) that serve to inform Tribes of relevant policies and related air quality concerns; maintaining excellent communication and outreach to Tribes so they are aware of resources, information, and opportunities; and preparing Policy Resource Kits on federal policies that have the potential to impact Tribal air quality and/or Tribes' ability to maintain healthy air.

Not only has the NTAA grown as an organization, but between 2018 and 2019 the number of federally recognized Tribes has grown to 574. The most recent Tribe to gain federal recognition is from Region 8, and an additional six Tribes from Region 3 were added to the federal ranks through 2018. Because STAG funding to Tribes is essentially stagnant, any plans to allocate Clean Air Act funds directly to "new" regions should be preceded by properly consulting with affected Tribes in order to uphold the principles outlined in the 1984 Indian Policy and current federal consultation policy. Appropriate consultation in budgetary matters may prevent further stress on existing Tribal air programs/budgets, which currently are being sliced into smaller and smaller pieces of an already small pie.

Through all the uncertainty and budgetary struggles, the NTAA has remained a consistent and reliable cornerstone on which Tribes know they can place their trust. The 2020 STAR aims to not only demonstrate the excellent work of Tribes across the country, but to advocate for increased investment by the federal government in Tribal air programs.

Sincerely,

Wilfred J. Nabahe, Chairman
National Tribal Air Association

1.2 Introduction

The Status of Tribal Air Report (STAR) is an annual report by the National Tribal Air Association (NTAA) to provide a national overview of Tribal air quality programs for the current administration. The 2020 STAR presents recommendations for EPA, a budget analysis, the importance of Tribal air quality programs for public health, and the priorities of Tribal air quality programs across the nation.

The National Tribal Air Association

The NTAA is a Tribal membership organization currently with 151 Member Tribes whose mission is to advance air quality management policies and programs consistent with the needs, interests, and unique legal status of federally recognized Tribes. The NTAA's membership grows yearly; to learn more about the NTAA and to become a member, please visit www.NTAATribalAir.org.

Additionally, the NTAA serves as a communication liaison and information conduit between Tribes, EPA, and other federal agencies. The NTAA exists to assist Tribes in air quality policy work while respecting and supporting Tribal sovereignty and the Tribes' rights to a government-to-government relationship with the federal government.

All federally recognized Tribes are eligible to become member Tribes of the NTAA. Tools, such as the policy response kits, developed by the NTAA are available online for download and are readily accessible by members of the public.

The NTAA's Goals:

To advocate for and advance the development of Tribal air policy for the protection of environmental, cultural, and economic interests at all levels of government (Tribal, federal, state, local, and international);

To promote the development, funding, and capacity building of Tribal air management programs;

To promote and facilitate air quality policy and technical information that may include research, scientific and/or medical studies;

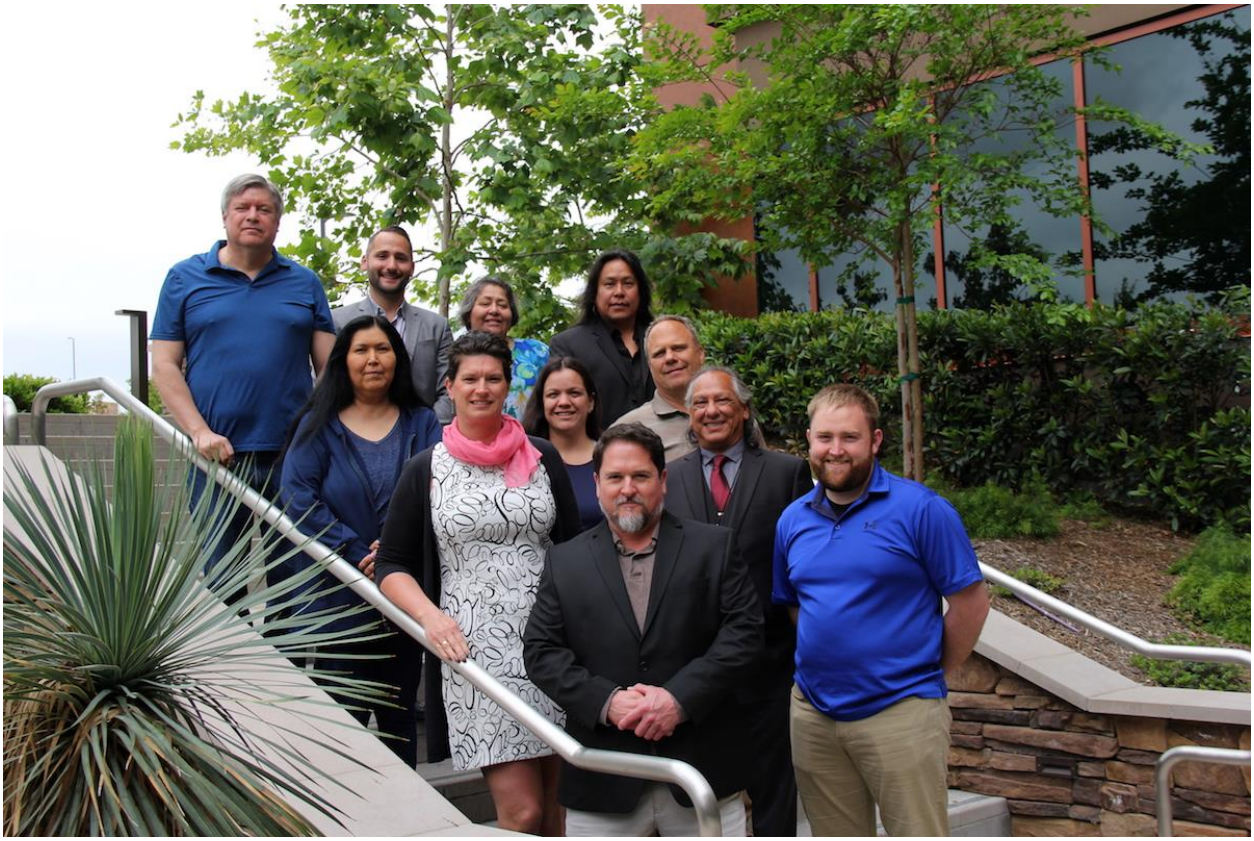
To advance the recognition and acceptance of Tribal sovereign authority by conducting effective communication with and outreach to state, local, federal and international agencies, and to the general public; and

To encourage and support appropriate consultation of state, local, federal, and international agencies with all Tribal governments in accordance with Tribal structures and policies.

NTAA Executive Committee

	Primary Representatives	Alternate Representatives
Region 1	Bill Thompson Penobscot Nation	Marvin Cling Passamaquoddy Tribe
Region 2	Angela Benedict Saint Regis Mohawk Tribe	Steven Smith Shinnecock Nation
Region 3	Seat Vacant	Seat Vacant
Region 4	Scott Hansen, NTAA Treasurer Catawba Indian Nation	Tiffany Lozada Poarch Band of Creek Indians
Region 5	Brandy Toft, NTAA Vice Chair Leech Lake Band of Ojibwe	Joy Wiecks Fond du Lac Band of Lake Superior Chippewa
Region 6	Craig Kreman Quapaw Nation	Cherylin Atcitty Taos Pueblo
Region 7	Billie Toledo Prairie Band Potawatomi Nation	Allison Gienapp Ponca Tribe of Nebraska
Region 8	Randy Ashley Confederated Salish & Kootenai Tribes	Linda Weeks Reddoor Fort Peck Assiniboine-Sioux Tribes
Region 9	Wilfred J. Nabahe, NTAA Chairman Colorado River Indian Tribes	John C. Parada Augustine Band of Cahuilla Indians
Region 10	Carol Kriebs, NTAA Secretary Kootenai Tribe of Idaho	Lucas Bair Spokane Tribe
Alaska	Ann Wyatt Klawock Cooperative Association	Maranda Hamme Craig Tribal Association

Table 1 NTAA Executive Committee Members



Members of the NTAA Executive Committee attended the 2019 National Tribal Forum on Air Quality in Temecula, California, hosted by the Pechanga Tribe.

1.3 Summary of Recommendations

Tribes and Tribal air programs have specific priorities related to each of the programmatic areas in the Office of Air and Radiation, as well as non-programmatic priorities. These priorities are outlined in Section 3 Tribal Air Quality Priorities, Successes, & Challenges, and illustrated by the stories submitted from Tribes across the country. The following list is intended to serve as a summary of recommendations for decision makers and those working with Tribal air programs.

1. **Uphold Tribal sovereignty**: Federal agencies need to demonstrate their commitment to Tribal sovereignty through:
    - Appropriate allocation of funding for Tribal Air Quality Programs;
    - Engaging proactively in government-to-government consultation with Tribal Nations;

- Upholding Trust Responsibility by developing and implementing air programs that are responsive to the individual needs of Tribes; and
- Responding to Tribal requests and recommendations in a timely manner.

2. **Increase funding for Tribal air quality programs:** In all of EPA's directional documents, including EPA's FY 2020 Strategic Plan and the President's Budget, there has been little to no indication of support for Tribal air priorities and programs. Of note, EPA programs and budgets addressing indoor air quality (IAQ) and climate change are missing from both of those documents, and there is an indication of lowering the standards for many ambient air quality concerns. Eliminating grants and programs addressing IAQ and climate change are in direct opposition with the immediate and long-term support needed to improve the health of Tribal communities. The NTAA does not support this strategic and budgetary shift for Indian Country or for the rest of the nation.

   In NTAA's FY2020 budget request to EPA, the NTAA is proposing two alternative budget amounts, ranging from an annual increase of 3% for each of the next five years, to an increase of $9 million to account for cost of living adjustments (COLA) and a comprehensive needs assessment for Indian Country *(see Recommendation 3 below)*. Other important, but difficult to quantify, items such as new and expanding programs and monitoring infrastructure, should also be considered when EPA funds Tribal air programs. In depth funding recommendations can be found in Appendix A: NTAA Tribal Air Quality Budget Analysis, and the following is a summary of funding priority areas for Tribal air quality programs:

   - Retain qualified staff and pay a competitive wage;
   - Replace and repair aging monitoring infrastructure;
   - Address wildfire air quality impacts *(see Recommendation 6 below)*;
   - Restore funding for existing established Tribal Air Quality Programs to a minimum of the highest historical funding levels;
   - Provide funding for Tribes seeking to establish an air program of their own;
   - Create new funding streams targeted at addressing critical needs such as indoor air quality, climate change mitigation and adaptation, and wildfire smoke management; and
   - Provide new funding to Tribes to keep pace with the increased amount of work in permitting new sources and to review permits issued by states and EPA.

3. **Greater support for Alaska**: Alaska Native Tribes and Villages represent over 40% of federally recognized Tribes in the U.S., and due to their geographic location they bear significant burdens caused by air pollution and climate change. They require increased funding and assistance for air programs and climate change adaptation planning. Specific recommendations include:
   - Identify funding for Tribes to implement "Clean Rooms" (clinics, schools, etc.) during wildfires or extreme road dust events. Having funding for this would

decrease the evacuation levels and provide a safe place for all residents if needed in the event of bad air quality.

- Provide Tribal Air Equipment Toolkits and training (handheld PM monitors, gas detectors, carbon dioxide & humidity monitors, wall moisture meters, etc.). Many Alaskan Tribes are concerned about indoor air quality and have the ability to obtain loaned equipment from the Tribal Air Monitoring Support (TAMS) Center and the Alaska Native Tribal Health Consortium (ANTHC) as they are available. However, if equipment is owned by the Tribe, these toolkits would assist them in addressing issues year round and consistently over time.
- Increase funding for more Alaska-specific climate adaptation trainings. Currently there are trainings on this topic, but not many are designed specifically for Alaskan's specific needs and conditions.

4. **Conduct Air Quality Needs Assessment**: Tribes recognize the need for a national comprehensive air quality needs assessment. The NTAA invites the EPA to partner with Tribes to conduct such an assessment in order for the federal government to gain a better understanding of the complex and unique issues Tribes face today. These issues can be as varied as the Tribes themselves, thus it is imperative to have a complete understanding of the true effects of air quality on Tribal health. The NTAA has made this request consistently since 2016.

5. **Facilitate partnerships**: Partnerships between Tribes, states, and other established air quality entities should be encouraged and funded, especially in the areas of ambient air monitoring, analysis, co-regulation of the NAAQS and other regulated pollutants, and IAQ assessments and remediation. So much more can be accomplished by networking and leveraging resources.

6. **Greater support for emerging wildfire threats:** As noted in both the 2019 and 2020 editions of the STAR, wildfires are increasing in frequency and intensity, leading to ambient and indoor air pollution, and emergency management responses such as evacuations. Tribal needs span from air monitoring, to health care from smoke exposure, to assistance with emergency management. Increased funding, staffing, and training are all essential components to maintain human health in the face of this immediate concern.

1.4 Summary of the Budget Analysis

Since the promulgation of the Tribal Air Rule (TAR) in 1998, which made it possible for Tribes to actively participate in the management of their air resources, Tribes have made great strides in taking on the challenges of managing their air quality. Over the last 22 years, Tribal air programs have expanded the areas in which they participate, while at the same time funding has become stagnant and program costs have increased.

Tribes see a great need to continue to increase the amount of activity taking place in their air programs, commensurate with the increasing need for protecting air quality. For example,

wildfire smoke levels have increased substantially over the past several years, leading to a double impact on Tribal spending as Tribes need to be able to purchase air quality monitors in order to have the data available to protect the health of their citizens, and because additional staff time is needed to operate these monitors and to inform Tribal government administrations, Tribal members, and Emergency Management Services and Incident Command personnel about pollutant levels. This issue is believed to be so vital to the future of Tribal air programs that a separate section of the 2020 STAR includes a section to address it (see *Section 2.5.1 Emerging Wildfire Threats*).

Several instances of backpedaling by the current administration mean that funding for indoor air quality, radon, and climate change work were completely eliminated in the FY2020 budget, as they were in the FY2019 budget, while these areas remain high priorities for Tribal air programs. Tribes have also been spending increasing amounts of time reacting to EPA proposals intended to water down or eliminate existing guidance and regulations. Many of these proposals do not have adequate documentation showing that they are necessary and appropriate and will not cause exceedances in air pollutants. Tribal participation in the rulemaking process is more important than ever, but must be supported by adequate funding.

Program Development

Over the past several years, Tribal air programs have experienced the following indicators of success and setback:

- The Treatment as a State (TAS) statute authorizes Tribes to manage programs under the CAA, including regulatory development, reviewing authority for Title V permits, the opportunity for PSD Redesignation of Reservation lands, air quality monitoring, etc. Between FY2012 and FY2020, the number of Tribes with non-regulatory TAS status increased from 34 to 60, and the number with regulatory TAS increased from 7 to 11.
- The number of Tribes currently operating air monitors, monitoring for criteria pollutants, hazardous air pollutants, and other pollutants under the National Atmospheric Deposition Program (NADP), has grown from 81 in FY2012 to 88 in FY2020.
- The number of Tribes with completed Emissions Inventories (EIs) ranged from 74 in FY2012 to a peak of 86 in 2015, but has decreased to 62 in FY2020, down from 73 in FY2019.
- The number of Tribes with §103 grants increased from 67 in FY2017 to a peak of 82 in FY2018. This number fell to 74 in FY2020.
- The number of Tribes with §105 grants has increased from 34 in FY2015 to 47 in FY2020.
- 29 Tribes applied for, and 26 Tribes were determined eligible for, Volkswagen Settlement funds in the first round, which closed March 1, 2019, with approximately $6 million available. The second round closed August 20, 2019, and will disperse $14 million to 45 Tribes. The third round has been announced and is underway, with complete applications due August 28, 2020. These funds can be used in limited applications to

replace certain old diesel engines with updated technology. However, not all applications may be useful to all Tribes.

- Since the DERA program began in 2009, 36 Tribes have received a total of $11.4 million in funds to replace old, dirty diesel engines or vehicles with cleaner options.

Although many needs exist for increased funding for Tribal air programs (such as a comprehensive air quality needs assessment, programmatic inclusion of indoor air quality and climate change, and the growing impacts from wildfires), the NTAA has developed two funding scenarios for EPA to consider that are limited to addressing the two issues of inflation (Solution 1) and increased health care costs (Solution 2). Both solutions use the FY1996 appropriation as a baseline.

Baseline FY1996 appropriation	Solution 1: FY2021 (inflationary adjustment)	Solution 2: FY2021 (health care costs adjustment)
$11 million	$18.1 million	$31 million

1.5 Summary of Air Quality Impacts on Tribal Health

The primary reason for Tribal involvement in air quality is the protection of the health of our citizens. Multiple studies have demonstrated the impacts of pollutants on human respiration, reproduction, endocrine systems, and more. In 2019, the NTAA developed *A White Paper Detailing the Science and Connections Between Air Pollution, Tribes, and Public Health* to assist Tribes in understanding and utilizing the latest scientific evidence to protect their people. This white paper was updated in 2020, is included in this STAR as Appendix C, and can be found on the NTAA's website, www.NTAATribalAir.org. Information from the white paper shows that pollutants can have even stronger impacts on our health than was previously understood. For instance, while epidemiologists have long known that pollutants such as ozone, nitrogen oxides, sulfur oxides, and particulate matter can have detrimental impacts on our respiratory and cardiovascular systems, new research links these pollutants to cognitive problems and mental health issues. The links between diabetes and pollution have been strengthened in recent years as well. While the reproductive impacts of some pollutants (such as toxics and diesel particulates) have been studied in the past, emerging links between preterm delivery, low birth weight, and infertility have been shown to exist. Most recently, a connection between increased air pollution levels and morbidity from COVID-19 has been demonstrated.

Moreover, study after study shows that the health of American Indian/Alaska Natives (AI/AN) is disproportionately impacted by air pollution. AI/AN adults and children alike have higher

rates of asthma, and AI/AN adults suffer from higher rates of diabetes, heart disease, and chronic obstructive pulmonary disorder than do people of non-AI/AN descent.

Wildfires are an increasing concern to air quality in Indian Country. As the climate changes, hotter temperatures and dryer conditions lead to catastrophic wildfires on and near Tribal lands. In recent years, Tribes have struggled with growing costs to prepare for, defend against, and clean up following catastrophic wildfires that impact public health, cause environmental damage, and strain Tribal budgets. Wildfires burden Tribes with additional and often unplanned costs to monitor air quality, update Tribal leadership regularly, conduct public outreach, assess environmental mitigation, and conduct clean-up operations. These financial impacts are on top of the health impacts suffered due to high levels of smoke inundation into the effected communities.

Indoor air quality, hazardous air pollutants, mobile sources, and climate change all contribute to air quality health concerns for Tribal people. Common indoor pollutants include allergens, radon, particulate matter, second-hand smoke, carbon monoxide, and excessive moisture, which in many cases leads to mold growth. These are linked to a wide variety of health impacts that may cause symptoms immediately or years later. Hazardous air pollutants (including benzene, asbestos, mercury, and lead compounds) can be of particular concern for Tribes who may be more exposed due to subsistence and traditional life ways. Mobile sources of air pollution, particularly from diesel exhaust, are of significant concern to Tribal communities who often rely on old or "legacy" fleets of diesel vehicles and equipment that produce high levels of air pollutants. Climate change and air quality protection are inextricably linked; climate change threatens Tribal lifestyles by decreasing food security, endangering culturally significant flora and fauna and forcing them towards extinction, increasing the risk of extreme weather events, and endangering public health in general.

1.6 Summary of National Priorities

Section 3: Tribal Air Quality Priorities, Successes, & Challenges in the 2020 STAR includes the top priorities of Tribal air quality programs, divided into the following eight topic areas:

- Ambient Air
- Indoor Air Quality and Healthy Homes
- Hazardous Air Pollutants
- Mobile Sources
- Climate Change
- Emergency Management
- Funding
- Consultation, Sovereignty, Collaboration, and Partnerships

The priorities for each topic area have significant overlap, particularly regarding the importance of upholding the 1984 Indian Policy, maintaining strong regulations, improving monitoring capacity, and increasing funding.

Tribes across the country not only contributed to the development of the priorities for each topic area, but also submitted narratives of their successes and challenges in addressing these issues in their air programs, sometimes despite not having a funded air program.

1.7 Executive Summary Conclusion

It is with pleasure that the NTAA presents the 2020 STAR. It is the great hope of all who contributed to the 2020 STAR that the value of Tribal air quality programs is fully recognized, and that Tribal air quality program priorities are elevated within the EPA.

Section 2. NTAA Briefing for the Current Administration on Tribal Air Quality Programs

The NTAA has prepared this 2020 STAR to brief the current federal administration on the status of Tribal air quality programs and to help familiarize the administration with the priorities, challenges, and successes of Tribal air quality programs that play an important and crucial role in protecting public health.

The NTAA was founded in 2002 with a grant from the U.S. Environmental Protection Agency Office of Air and Radiation, and continues to work with Tribes, states, and federal agencies to facilitate Tribal air quality programs and protect air quality in Indian Country. Tribes are effective co-regulators of air quality and possess unique environmental knowledge that makes them important partners for agencies working to address pollution and climate change.

Statistics of American Indian Tribes and Alaska Natives

- 574 Federally recognized Tribes and Alaskan Natives with a population of approximately 1.9 million American Indian and Alaskan Natives
- Trust lands represent approximately 56.2 million acres
- 60 Tribes have non-regulatory "Treatment as State" (TAS) status under the Clean Air Act (CAA) and 11 have regulatory TAS (up from 53 and 10, respectively, in 2019)
- 88 Tribes operate air monitoring sites
- There are 368 identified major sources on reservations
- 18 Tribes are implementing regulatory or permit programs in Indian country (7 TIPs, 2 Title V programs, and 9 with delegation of the Federal Air Rules for Reservations, or FARR)
- 6 Tribes have completed Class I designations

2.1 Tribal Consultation and Sovereignty

Since 1984, the EPA's policy of working with Tribes has been based on close coordination and respect for Tribal self-determination and sovereignty. Consistent with EPA's Policy for the Administration of Environmental Programs on Indian Reservations signed in 1984 by President Reagan and reaffirmed by every Administration since that time, this policy directs EPA to work in close coordination with the Tribes and respect Tribal self-determination and sovereignty. Specifically, the EPA's Policy for the Administration of Environmental Programs on Indian Reservations is as follows:

> *In carrying out our responsibilities on Indian reservations, the fundamental objective of the Environmental Protection Agency is to protect human health and the environment. The keynote of this effort will be to give special consideration to Tribal interests in making Agency policy, and to insure the close involvement of Tribal Governments in making decisions and managing environmental programs affecting reservation lands.*

This policy has remained the cornerstone of the EPA's approach to working with Indian Tribes and Tribal governments, and it was most recently reiterated in the EPA's 2014 update to its consultation policy. The NTAA strongly supports this policy, and seeks to ensure that the EPA continues to consult with Indian Tribes on the many decisions that affect reservation lands, including CAA regulations, permitting and enforcement, environmental justice, and program funding.

The NTAA encourages the EPA to demonstrate its commitment to supporting Tribal sovereignty and self-determination, rather than providing a patchwork of diminishing funding streams, including the decrease in CAA funding and GAP grants. Since EPA is the air quality regulatory authority on Tribal lands when Tribes are unable to implement air quality programs themselves, we request that the EPA engage proactively in government-to-government consultation to uphold their trust responsibility, develop and implement air programs that are responsive to the needs of individual Tribes, and respond to Tribal requests and recommendations in a timely manner.

2.2 Funding and Resources

The EPA currently provides approximately $11.8 million in funding to Indian Tribes under the Clean Air Act Sections 103 and 105 for air quality programs (see *Table 2* below). Indian Tribes have limited revenue sources, so many either do not have an air quality program or rely solely on EPA funds, which are crucial to Indian Tribes' ability to operate and maintain air quality programs on Tribal lands. As more and more Tribes seek to establish air quality programs, this funding level becomes even less sufficient. While this year's funding for air quality programs reflects the first increase in the last five years, there are also more federally recognized Tribes than in the past, and air quality programs have seen an overall reduction since 2012. The NTAA has consistently supported increased funding for Tribal air quality programs to:

- Restore funding to at least the highest historical funding levels;
- Provide funding for Tribes seeking to establish an air program of their own;
- Create new funding streams targeted at addressing critical needs such as indoor air quality, and climate change mitigation and adaptation;
- Provide new funding to keep pace with increased new source permitting activity;
- Replace and repair aging air monitoring infrastructure.

Tribes that are initiating new air programs, and nearly all the Tribes/Native Villages in Alaska, rely solely on the Indian Environmental General Assistance Program (GAP) funding, which has also been relatively stagnant over the last 10 years. To cover all of their environmental programs with GAP funding forces tough choices for Tribal governments as to which of the worst challenges will be addressed. NTAA strongly supports an increase in GAP base funding. Please see Appendix A: NTAA Air Quality Budget Analysis for additional details on funding required to adequately operate Tribal air quality programs.

As an EPA Partnership organization, NTAA also encourages and facilitates partnerships between Tribes, the EPA, and other air quality entities, including state and local governments. Funding and technical resources from the EPA – especially for monitoring, analysis, co-regulation, and IAQ testing and remediation – are critical to supporting these efforts.

Table 2 State and Tribal Assistance Grant (STAG) Allocations for Fiscal Years 2012-2020

Region	2012	2013	2014	2015	2016	2017	2018	2019	2020
1	$.657	$.614	$.623	$.622	$.594	$.576	$.566	$.554	$.621
2	$.440	$.424	$.425	$.418	$.403	$.394	$.389	$.380	$.368
3									$.077
4	$.331	$.312	$.317	$.313	$.316	$.327	$.328	$.322	$.317
5	$1.264	$1.146	$1.179	$1.226	$1.229	$1.233	$1.284	$1.294	$1.282
6	$1.305	$1.174	$1.176	$1.181	$1.141	$1.137	$1.109	$1.075	$1.172
7	$.465	$.434	$.500	$.525	$.535	$.535	$.575	$.605	$.563
8	$2.110	$2.002	$2.096	$2.070	$2.001	$1.976	$1.889	$1.834	$1.889
9	$3.260	$2.934	$2.975	$2.885	$2.967	$2.917	$2.869	$2.844	$2.879
10*	$2.657	$2.421	$2.467	$2.444	$2.464	$2.450	$2.468	$2.442	$2.599
Total	**$12.5**	**$11.5**	**$11.8**	**$11.7**	**$11.7**	**$11.5**	**$11.5**	**$11.4**	**$11.8**

All amounts are in millions of dollars.
* Includes Alaska
Table 2 State and Tribal Assistance Grant Allocations for Fiscal Years 2012-2020

2.3 Assessing, Permitting, and Regulation

Air Quality assessments, including emissions inventory development and monitoring, and managing air quality regulation on and near Tribal lands, is necessary to protect the public health of Tribal members. Tribal communities are more vulnerable to air pollution impacts, and experience higher than average rates of diabetes, heart disease, and childhood asthma. In addition, Tribal communities are at higher risk of exposure to mercury, uranium and other air toxics due to traditional lifeways, particularly subsistence practices.

Tribes strive to be effective co-regulators of air quality, working alongside federal, state, and local agencies to assess, monitor, and manage regional air quality. EPA plays a crucial role as

the primary air quality regulatory authority on Tribal lands working directly with Tribes to protect and manage air quality where Tribes have not assumed authority, including permitting and regulatory activities on Tribal lands. Tribes should be play a larger role in the oversight of permitting and regulatory activities off Tribal lands where Tribal land and the health of Tribal communities are at risk and where Tribes retain hunting, fishing, and gathering rights.

Some Tribes have delegated air programs pursuant to the Tribal Authority Rule (TAR) under the CAA, which delegates authority to Tribes to administer and enforce the CAA on Tribal lands, including implementing Federal Implementation Plans (FIPs). Under the TAS eligibility determination, Tribes may regulate sources through Tribal Implementation Plans (TIPs), or through delegation of Federal rules and programs for many aspects of the CAA. Tribes may also develop or take delegation of permit programs for minor and major sources on their lands under Title I and Title V of the CAA. In addition, Tribes manage and operate voluntary programs such as the Diesel Emissions Reduction Act (DERA), radon testing and mitigation, indoor air quality, and others, to form a comprehensive suite of programs to protect public health in Tribal communities.

Assessing Air Quality

Ambient air is comprised mostly of nitrogen, oxygen, and other gases as well as a whole host of criteria[1] and hazardous air pollutants that vary in concentration as a function of proximity to air pollution sources, geographic location, and weather patterns. These pollutants are produced by many sources, including industry, forest fires, agriculture, and transportation. While many different methods of analysis are already being used to understand and reduce air pollution, additional methods are available that could help shed new light on managing air resources.

Air quality assessments, including the monitoring of air quality, are a critical component of evaluating the public health and cultural resources on Tribal lands. Air pollutants are not bound by borders and many Tribes are forced to live with air pollutants that they played no role in creating. Further, many Tribes are unfairly burdened with air pollution resulting from dirty industrial sources such as mining or power generation projects within or near their borders.

Tribal air quality programs play an integral role in assessing and managing air quality in Indian country. In partnership with the EPA, Tribal air quality programs can identify and monitor air pollution problems and effectively focus site-specific mitigation efforts to reduce pollution and improve health, and engage in enforcement activities against polluters when necessary.

Monitoring

A number of Tribal air quality programs are engaged in national efforts to assess air quality, including the monitoring of air quality, which is helping them to understand air pollution trends and mitigate the health impacts of these trends locally and nationally. The Clean Air Status and Trends Network, or CASTNET, is a national monitoring network established to assess trends in atmospheric deposition that cause acid rain, ecological effects, and pollutant

concentrations due to changes in the emissions of air pollutants.[2] Specifically, CASTNET measures ambient air concentrations of sulfur and nitrogen species and rural ozone concentrations.[3] Tribes play an important role in the CASTNET network with six monitoring sites located on the lands of the following Tribes: Cherokee Nation in Oklahoma; Alabama-Coushatta Tribe in Texas; Santee Sioux Nation in Nebraska; Kickapoo Tribe of Indians of the Kickapoo Reservation in Kansas; Red Lake Band of Chippewa Indians in Minnesota; and Nez Perce Tribe in Idaho.[4] EPA's Air Quality System (AQS) provides monitoring data from states, Tribes, and others to track air quality over time. This system is used for regulatory and research purposes, and houses most of the data collected by Tribes. Air Data (https://www.epa.gov/outdoor-air-quality-data) is a website where Tribes and the public can locate monitors in their area and track trends over time. In addition, the AirNow system, developed in 1998 by EPA, the National Oceanic and Atmospheric Administration (NOAA), National Park Service (NPS), Tribal, state and local agencies, provides the public with easy access to more real time national air quality information.[5] The AirNow Air Quality Index informs the public about the existing air quality and the associated health effects of concern; and through a system of numbers and colors, helps people understand what actions that they can take in order to protect their health.[6] Twenty-nine Tribal partners in thirteen states are actively engaged in AirNow including the Leech Lake Band of Ojibwe, the Lone Pine Paiute-Shoshone Tribe, and the Quapaw Nation.[7] More Tribes want and need to be involved in CASTNET and AirNow, but can only do so if they acquire additional federal funding support.

In addition to the AirNow site, there is another site that Tribes contribute to called AirNow-Tech. AirNow-Tech is a password-protected website for air quality data management analysis and decision support. AirNow-Tech is primarily used by the federal, state, Tribal, and local air quality organizations that provide data and forecasts to the AirNow system, as well as researchers and other air data users. It allows users to:

- Access monitoring site data, information, and polling status
- Analyze current and past air quality events and episodes
- Submit and analyze air quality forecasts
- Configure EnviroFlash email services for public dissemination of air quality forecasts
- View meteorological and air quality data
- Generate data reports
- Create GIS-based maps with air quality and meteorological conditions
- Sign up for the AirNow Notifier listserv

The vast majority of Tribes are small, isolated, and have limited budgets. As such, federal assistance for Tribal air quality programs is critical to their operation. As shown in the NTAA budget analysis *(see Appendix A)*, funding levels have decreased since 2012, causing stagnation of Tribal air program growth. These programs have continued to achieve more with less, particularly in how they have been able to paint a fuller picture of the nation's air quality through their monitoring efforts, and moving to control and regulate air quality in their areas. However, current funding levels threaten the sustainability of these achievements. For example, as monitoring equipment and infrastructure ages and breaks down, Tribal air quality

programs are unable to continue operations with the same levels of success and data Quality Assurance/Quality Control (QA/QC). Additional funding is necessary to establish new and maintain current Tribal air quality programs, to build capacity, and to grow these programs in the future in order to contribute to a national strategy for achieving cleaner air.

Air Emissions Inventories and Tribes

An air emissions inventory (EI) can cover a broad range of activities. An EI can range from a simple summary of sources of air pollution on or near a reservation, to a comprehensive accounting of the exact amount and location of air pollution impacting the Tribe.

An EI is often the first step in a Tribe's air quality program planning. If a Tribe recognizes that they have an air quality problem, they may choose to start an air quality program to figure out how to address it. For example, an air quality problem may be discovered by finding that large numbers of Tribal residents are experiencing respiratory problems, or by noticing that haze seems to be blocking the view of a distant mountain range or butte much more frequently than in the past. If the cause of air pollution is obvious, such as a big power plant or metropolitan area nearby, a Tribe may start their air quality program by monitoring the concentrations of air pollutants on their reservation. If the cause or sources of air pollution are not obvious, an EI is a good place for a Tribe to start exploring what the sources of air pollution are and from where they are coming.

The information collected by doing an EI is an excellent air quality management tool. Once a Tribe knows how much air pollution is produced on their lands and how much is produced by nearby sources, they can make informed decisions about how new sources of air pollution will affect them. If a new business or development is being proposed on Tribal lands, the Tribe can ask for estimates of how much air pollution the new development would produce to determine how the new source will influence overall air quality. For new sources being proposed outside, but near to, the Tribal lands, the Tribe will be able to comment on how pollution from the new source will affect their air quality.

It is important to understand that there are different ways to report air emissions estimates: 1) In the form of a report that the Tribe uses to summarize and explain the tables, charts, and maps from the Tribal Emissions Inventory Software Solution (TEISS). ITEP's online training includes how to export charts, maps, and tables from TEISS to use in an EI report. Some agencies may report their estimates only in such a report, which may be presented to agency management or the EPA regional office. Such reports will include sections on point sources, as well as the nonpoint (area) sources. 2) Emissions estimates data from sources on the Tribal lands can be uploaded to the National Emissions Inventory (NEI) database. Tribes are not required to submit data to the NEI database, but are encouraged to do so in order to increase Tribal representation in the NEI database. The NEI database is used for air dispersion modeling, risk assessment screening, and tracking emissions trends. The modeling results are often used to provide information for the creation of new regulations and to provide technical support for rule making. By supplying data to the NEI, Tribes are represented in these important decision making processes.

In summary, an air emissions inventory is an important component of an air program, and is ideally updated every three years. Such information provides the Tribal agency with information that can be used to guide pollution exposure reduction measures, monitoring projects, and public outreach and communication.

New Ways of Assessing Air Quality

Emissions Forecasting

The fields of ambient air quality modeling and meteorology combine in the area of emissions forecasting. A number of state and Tribal agencies are making use of this area of study to keep their citizens informed about predicted poor air quality days so that individuals and governments can make decisions to help reduce pollution or exposure. For example, the Minnesota Pollution Control Agency provides forecasting to all state citizens and has worked with Minnesota Tribes to respectfully include and address forecasts on Tribal lands.

Health Impact Assessments

In recent years, some agencies have started using Health Impact Assessments, or HIAs, to supplement other analyses, such as Environmental Impact Statements (EISs) or Environmental Assessments (EAs). Tribes often find that EISs and EAs do not adequately address the local health, economic, or social impacts of proposed actions and have been developing HIAs so these factors can be considered. For example, several HIAs can be reviewed on the Alaska Native Tribal Health Consortium's website.[8] The Fond du Lac Band of Lake Superior Chippewa also produced a HIA related to protections for wild rice.[9]

Traditional Knowledges and Traditional Knowledge Systems

Traditional Knowledges (or TK), is hardly a new field, but it is one that is gaining recognition by the mainstream scientific community. *A White Paper Detailing the Science and Connections Between Air Pollution, Tribes, and Public Health* contains a section on Holistic Methods and Traditional Knowledges that highlights the world's growing appreciation for traditional ways. Section *2.5.1 Emerging Wildfire Threats* also relates how Tribal knowledge is starting to be used to manage wildfires that are growing in frequency and intensity as a result of climate change. As described in Appendix C: *A White Paper Detailing the Science and Connections Between Air Pollution, Tribes, and Public Health*, the *Guidelines for Considering Traditional Knowledges in Climate Change Initiatives*[10] (*Guidelines*) is a useful starting point for increasing our understanding of the role of TK in climate change initiatives. The *Guidelines* are also intended to address the need for protections for TK (e.g., TK may be subject to Freedom of Information Act requests, which would expose TK to public examination) and to promote mutually beneficial and ethical interactions between Tribes and non-Tribal government entities. We hope that TK will eventually be used in many additional areas of air quality management.

2.4 Air Quality and Health

The primary reason for Tribal involvement in air quality is the protection of the health of our citizens. Multiple studies have demonstrated the impacts of pollutants on human respiration, reproduction, endocrine systems, and more. In 2019, the NTAA developed *A White Paper Detailing the Science and Connections Between Air Pollution, Tribes, and Public Health* to assist Tribes in understanding and utilizing the latest scientific evidence to protect their people. This white paper was updated in 2020, and is included in this STAR as Appendix C. Information from that paper shows that pollutants can have even stronger impacts on our health than was previously understood. For instance, while epidemiologists have long known that pollutants such as ozone, nitrogen oxides, sulfur oxides, and particulate matter can have detrimental impacts on our respiratory and cardiovascular systems, new research links these pollutants to cognitive problems and mental health issues. The links between diabetes and pollution have been strengthened in recent years as well. While the reproductive impacts of some pollutants (such as toxics and diesel particulates) have been studied in the past, emerging links between preterm delivery, low birth weight, and infertility have been shown to exist. Most recently, a connection between increased air pollution levels and morbidity from COVID-19 has been demonstrated.[11]

The health impacts of air pollution on many American Indian/Alaska Native (AI/AN) communities are magnified by such factors as the inability to receive quality medical care due to issues like cultural barriers and geographic isolation,[12] and spending more time in unhealthy air environments than their non-AI/AN counterparts. Most AI/AN community members, including children and Tribal elders, spend a considerable amount of time outside gathering and using plants of cultural significance. Other communities, such as those located in Alaska, are forced to spend a significant amount of time indoors during the winter months. This lifestyle can foster heightened respiratory conditions such as asthma. Approximately 14.2% of AI/AN adults have asthma compared to 11.6% of non-Hispanic white adults and AI/AN children are 60% more likely to have asthma as non-Hispanic white children.[13] Pre-existing health conditions are more prevalent among AI/AN people than the general public, with AI/AN adults diagnosed with diabetes more than three times more often than non-Hispanic white adults[14] and are also more likely to report having COPD.[15] These are health figures which necessitate Tribal air quality programs engaging in comprehensive air quality monitoring and management.

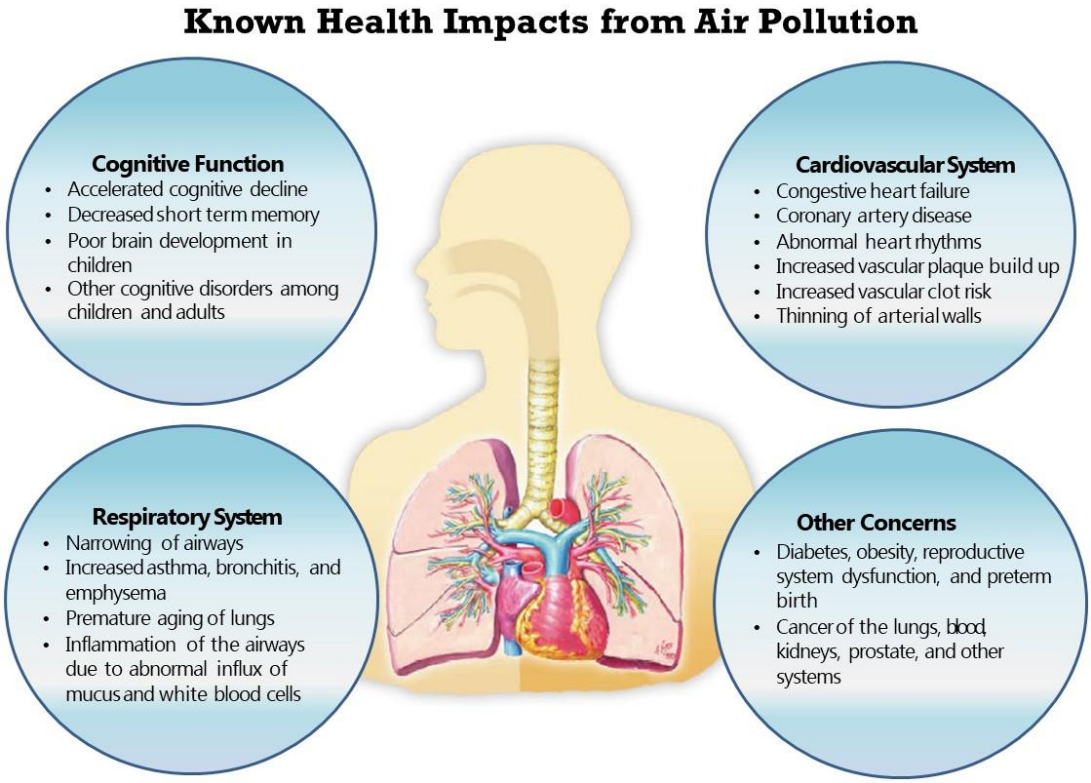


Figure 1 Known Health Impacts from Air Pollution

2.5 Areas of Concern

2.5.1 Emerging Wildfire Threats

As the climate changes, warmer temperatures and drier conditions lead to catastrophic wildfires on and near Tribal lands. In recent years, Tribes have struggled with growing costs to prepare for, defend against, and clean up following catastrophic wildfires that impact public health, cause environmental damage and strain Tribal budgets.

In NTAA's FY2020 Tribal Air Quality Budget Analysis, wildfires are identified as a budgetary threat that must be addressed. From 2011-2016, western Tribes saw an overall increase of 41% in acres burnt by wildfires, while Tribal budgets for addressing air quality have decreased. From FY2012-FY2017, overall EPA funding for Tribes' air quality programs was reduced from a peak of $12.49 million in 2012 to a low of just $11.35 million in 2019, even as inflation has risen by roughly 2% per year during that period and health care costs have risen by 4.9% annually between 2012 and 2014, and by 3% annually between 2015 and 2017. While a slight increase

over 2019 funding was seen in 2020 (from $11.4 million to $11.77 million), the disparity between Tribal funding needs and funding reality remains substantial. Fire staffing within the Forest Service has grown 114%, from 5,700 in 1998 to over 12,000 in 2015.[16] Such increases have not been seen by Tribes, even though a recent article reports that more than 20% of Native Americans in the U.S. live in areas highly prone to wildfires, but less than 18% of Tribes in the country have fire departments and less than 5% receive sufficient funding from agencies such as the Federal Emergency Management Agency (FEMA) or the Bureau of Indian Affairs (BIA).[17] This article also reports that insurers often refuse coverage to homeowners in these areas, which means that Tribes and individual Tribal members may lose everything due to wildfires. This could also lead to Tribal members being extremely reluctant to evacuate their homes during such a fire, putting their lives, as well as their property, in danger. An additional study in *PloS One*[18] found that Native Americans are more likely than people in other ethnic communities to live in areas that have both the highest potential for wildfires and the lowest capacity for effective response and recovery. This is due to factors such as income, education, and access to transportation and other social services.

At the same time, Tribes' attempts to reduce fire danger on their Reservations can be frustrating. Pre-European contact, many Tribes controlled wildfires by performing prescribed burns on their lands. However, a 1911 federal law made it illegal for non-state or federal agencies to burn public land. The Karuk Tribe in California, for example, has to negotiate individual agreements with the agencies that have jurisdictional power over their land.

Sources report that today's fires are larger, last longer, start earlier in the year and last later in the year than in the past.[19] In a Washington Post article that ran on August 14, 2018,[20] a number of facts were highlighted, as follows:

- The amount of acreage burned has been growing steadily since the 1980s, despite year-to-year variations;
- Between 1990 and 2000, the number of acres burned annually grew from 4.6 million to 7.4 million, and in 2015 this number was a record-breaking 10.1 million;
- The typical fire has gotten bigger, from between 40-80 acres in the 1980s and 1990s to more than 100 acres in the 2010s. In 2018, the average size was about 130 acres.

In 2018, fires burned 8.7 million acres, far surpassing the 10-year average burn area of 6.8 million acres per year. The total cost of the season was $24 billion, overtaking 2017 as the most expensive ever ($16 billion).[21] However in 2019, the US had fewer wildfires than 2018 (46,706 compared to 52,080) with fewer acres burned (4.6 million acres compared to 8.5 million acres), partly due to more moderate weather.[22]

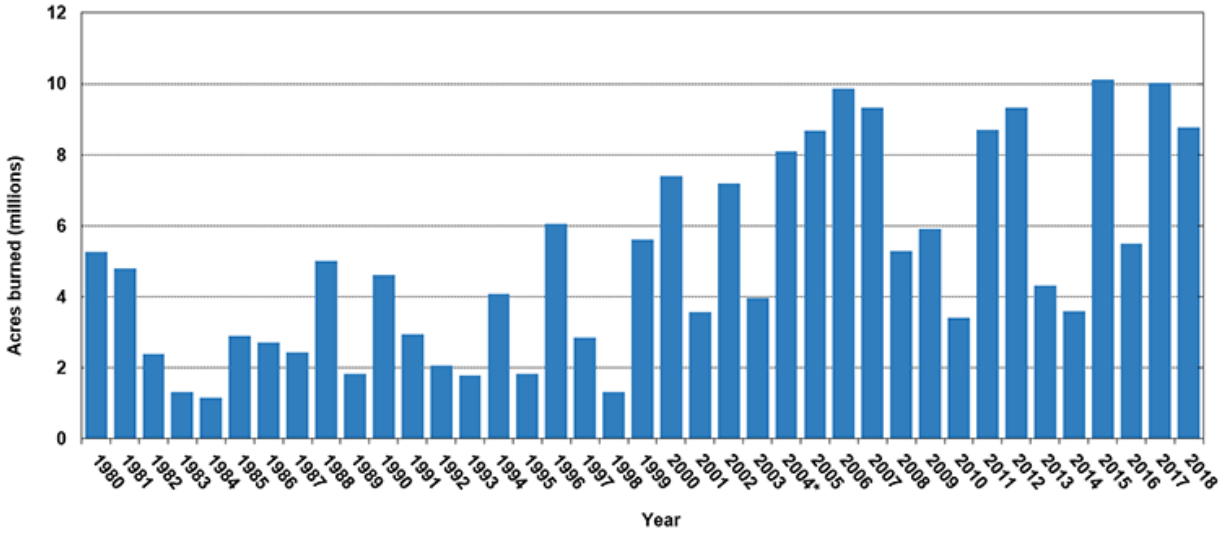


Figure 2 Annual Number of Acres Burned in Wildland Fires, 1980-2018

Wildfires burden Tribes with additional and often unplanned costs to monitor air quality, update Tribal leadership regularly, conduct public outreach, assess environmental mitigation, and conduct clean-up operations. These have led to budgetary challenges for Tribes, which are described in the paragraphs below.

Tribes have many governmental entities, as well as businesses, for which they are responsible. Tribal leadership must assess when they need to close K-12 schools, colleges, clinics, elder housing complexes, casinos, government buildings, and other businesses due to extreme wildfire smoke or the fires themselves. Tribes may need to evacuate employees and Tribal members, sometimes from remote locations, and must find a safe place for these evacuees to stay. Since many reservations are quite large and quite remote, Tribes cannot rely solely on other governmental agencies to help them manage these concerns. In any case, other agencies are facing the same challenges with funding as Tribes, and cannot devote the resources needed to fully protect reservations. Non-Tribal agencies may not respond to Tribal areas at all because these areas are not in their jurisdiction. Tribes know best how to manage these situations to minimize costs and health impacts but need the funds to do so. For example, advanced planning is necessary to coordinate community evacuations. Evacuations can be difficult and dangerous because they may occur under all types of conditions, any day of the year, and at any time of the day. Routes can become blocked due to heavy traffic or vehicle breakdowns. Once citizens have been evacuated, they need to know where to go and need to be sheltered until they are able to return home.

If conditions do not require a call for evacuations or if citizens are instructed to shelter in place, indoor air quality can become an important issue. Studies show that during wildfire events indoor air in older buildings can have particulate levels that are up to 70-80% of outdoor

levels, even if all the doors and windows are closed. However, in newer buildings with high performance filtration, levels can reduce exposures to outdoor particles to less than 5%.

Residents can try to reduce pollutant levels indoors by using portable air cleaners (as long as they do not create ozone), recirculating indoor air rather than drawing in outdoor air, closing the dampers on window air conditioners, and avoiding indoor activities that create pollutants, such as burning incense or candles or spraying aerosols.[23]

Schools are a particular concern during wildfire events because their occupancy rate is higher than homes or office buildings.[24] Due to the amount of time that most people spend indoors, up to 80% of the length of time of exposure to particulates from wildfires can take place indoors.[25]

Tribes are also responsible for the health and safety of the firefighters who are diligently working to protect life and property from these fires. In 2017, the (BIA) reported 1,100 Tribal firefighters and 1,500 Tribal administrative firefighters.[26] Just as the Forest Service works to estimate pollutant levels for firefighters, Tribes need to be able to protect the health of these individuals if they are working on-reservation.

In addition to immediate emergency situations, many wildfires are lasting longer - leading to public health emergencies for several weeks at a time in Tribal communities, where Tribal members can be more susceptible to asthma or pulmonary issues.[27] For those with asthma, other pulmonary issues, or who are homebound, both ambient air quality and indoor air quality are a threat.[28] Tribes may also need advanced communications equipment or plans in order to keep leadership and the Tribal population informed.

Tribal Populations

Tribal members with asthma and pulmonary conditions are not the only populations at risk. Health impacts can transmit to babies born to women who are pregnant during wildfires. Research shows that babies born during or immediately after fire events have lower birth weights than infants born at other times, with significant effects for wildfire exposure during the second and third trimester of pregnancy.[29]

Additionally, smoke from massive wildfires has been known to cause fetal infant and child mortality in extreme cases.[30] As wildfires destroy more and more homes, the emissions from these fires potentially contain toxic chemicals from burning furniture, carpets, and appliances. These add an entirely new category of pollutants that Tribes may need to monitor.[31] The Wegesser [31] study found that not only were concentrations of particulate matter higher during wildfire episodes, but the particulates were much more toxic to the lungs (on an equal weight basis) than PM collected during normal conditions. In fact, the study found that "we can estimate the relative toxicity of the wildfire PM on an equal-dose basis as about 10-fold more damaging than normal PM." The study further states that because the amount of PM in the air during the events observed was roughly three times higher than under normal conditions, people exposed to the air from the wildfires were exposed to a relative risk of lung inflammation around thirty times higher than the risk during normal conditions.

Clean-up operations include hauling away large amounts of housing debris and burned vehicles. These can cause air quality issues insofar as Tribal workers must be protected from lingering toxic emissions and particulate matter that come from moving the debris. Toxic chemicals may come from charred vehicles, asbestos, and fiberglass from homes, even from containers of cleaning fluids, such as bleach, that were burned.[32] Even though the flames may be out when the clean-up crews arrive, the contaminated ash that is left behind is hard to avoid.

Tribes can also be impacted by power outages due to wildfires. An October 29, 2019, article in Indian Country Today[33] recounts the experiences of a California Tribe dealing with power outages that resulted from efforts by Pacific Gas and Electric to cut power transmission to limit the potential for wildfires. Tribal people are at risk from repercussions of power outages due to geographic isolation and lack of basic services. This leads to increased costs for generators to keep buildings at a comfortable temperature and to provide refrigeration and sanitation.

Specific Tribal Funding Needs Related to Wildfires

Tribes in the western US are experiencing larger, more intense, and longer-lasting wildfires over time, at substantial cost to all involved. In California last year, several catastrophic wildfires were estimated to cost $88 per person per day in additional costs. These Tribes must prepare emergency response plans that calculate some of these specific costs, in partnership with EPA. Through the BIA Wildland Fire Management, Tribes have responded to an average of 8,893 wildfires covering about 500,000 acres every year.[34] These Tribes need support from EPA as soon as possible.

Funding within Tribes for air quality monitoring and public outreach is already stretched thin, so identifying additional funds to set up mobile air monitors during a fire or to educate Tribal communities to become "smoke-ready" is a real challenge (see *Smoke Ready Communities: Preparing for Smoke* in the 2019 STAR). Tribes can fall into three categories when it comes to wildfire response: those who deal with wildfires consistently, those who deal with them occasionally, and those who deal with them remotely. Tribes in each of these categories have separate needs.

Tribes who regularly experience wildfires on or near the reservation need to be able to mobilize monitors and conduct outreach immediately upon notification of a wildfire. These Tribes should prepare emergency response plans and should have their own monitors, with staff trained and ready to deploy these devices. Clean-up staff should also be trained in how to protect themselves from emissions. Tribes whose lands cover large areas would likely need several of these monitors in order to adequately protect their populations. Cost estimates to prepare an emergency response plan vary greatly due to the complexity of the process and the need to include an Incident Command System (ICS) that prepares Tribes for all emergencies, not just fires. Smoke modeling would be helpful for Tribes in these situations, as it could help protect firefighters and residents by predicting when and where the heaviest smoke conditions would occur. The NOAA provides air quality forecasts related to smoke

through the National Weather Service but some Tribes may prefer to perform their own forecasts and this would require training and software.

How do Tribes prepare and calculate costs from wildfires that may or may not happen? Some Tribes experience only occasional problems with wildfire smoke. Tribes can prepare emergency response plans that calculate some of these specific costs (the cost of preparing an emergency response plan is estimated above) but a dialogue between Tribes and EPA or another federal agency must take place to set things in motion. These Tribes could potentially borrow portable battery or solar operated equipment from the Tribal Air Monitoring Support (TAMS) Center as needed, however TAMS currently does not have the budget to purchase any additional equipment. These Tribes should also prepare emergency response plans. As stated above, if a Tribe needs to purchase their own portable monitor, these costs run at least $5,000-$8,000 for a basic unit. If the Tribe purchases a Federal Reference Method (FRM) monitor for long-term monitoring needs, they can expect to spend around $10,000-$15,000 just for the monitor, depending on what type is purchased. Additional costs are listed in the paragraphs below.

Tribes across the country experience smoke impacts each summer, such as high particulate levels, from wildfires in the western US and in Canada. For example, a recent study conducted by the Louisiana Department of Environmental Quality used a Weight of Evidence approach to demonstrate that wildfires in California caused ozone exceedances in Louisiana, roughly 1,600 miles away.[35] More demonstrations like this will be conducted in the future as states and Tribes work to pinpoint why exceedances occur.

While Tribes impacted by distant fires may not need to use portable monitors, placement of FRM monitors can help track the movement of wildfire emissions across the nation and can help Tribal Nations protect their people. As stated above, the cost to purchase an FRM monitor is roughly $10,000-$15,000, but associated costs also include training, quality assurance project plan preparation, audits, filter analysis (at around $7,000 per year), and data analysis. EPA has prepared materials for "Smoke-Ready Communities". Publications such as this are helpful to Tribal communities preparing for wildfires, but additional funds must be made available for Tribes to address the air quality crises that result from wildfires.

The Role of Climate Change

As wildfires continue to sweep the landscape of America, the role of climate change in this area remains largely ignored. A recent article in the Columbia Journalism Review[36] discusses the lack of reporting on the link between climate change and this phenomenon. This article discusses media coverage of wildfires in the State of California over the past few years. While several papers have published "explainers", editorials, and opinion pieces about the role of climate change in their state's battle against these blazes, most articles either do not bring the topic up or gloss over it in a sentence or two. This means that readers must actively seek out coverage that delves deeper into the causes of the fires. News stories that do mention climate change tend to do so only in quotes from politicians and officials, which can make the claims seem politically motivated and lacking in authority.

2.5.2 Indoor Air Quality

Much like ambient air quality, monitoring and maintaining indoor air quality (IAQ) plays a very important role in maintaining health within Tribal communities. Common indoor pollutants include allergens, radon, particulate matter, second-hand smoke, carbon monoxide, and excessive moisture, which in many cases leads to mold growth. These are linked to a wide variety of health impacts that may cause symptoms immediately or years later. IAQ issues can vary widely depending on the season and region, meaning Tribes across North America face different challenges when mitigating the impacts from indoor air pollution at any given time.

While the pollutants and health impacts associated with IAQ are very similar to those of ambient air quality, the challenges to monitoring and maintaining IAQ are much different. Due to the large number of indoor environments that must be assessed, monitoring IAQ can be much more time and resource intensive than monitoring ambient air quality. Additionally, many Tribal communities have poor housing conditions that amplify indoor air quality problems.

Monitoring indoor air quality and maintaining healthy indoor environments is critically important. The EPA has found that Americans spend as much as 90% of their time indoors, where levels of air pollutants are often 2, 5, or even 100 times higher than levels outside.[37] A recent study led by researchers at Harvard University compared the cognition of workers in conventional office buildings to their counterparts in well-ventilated buildings, and highlights the value of healthy indoor air quality. The researchers found that people working in conditions with better-than-average air quality showed "significantly higher cognitive function" and scored nearly 300% higher when tested for cognitive strategy and information usage.[38]

In 2017, the NTAA conducted the first National Indoor Air Quality Needs Assessment for Indian Country. The findings of this Needs Assessment were summarized in the 2017 STAR, and an update on progress from the IAQ work group was included in the 2018 STAR in section 3.2 Indoor Air Quality.

2.5.3 Hazardous Air Pollutants and Mobile Sources

Hazardous air pollutants (HAPs) are known or suspected to cause serious health effects such as cancer, neurological problems, and birth defects. The EPA lists 187 known toxic air pollutants including benzene, asbestos, mercury, and lead compounds. Humans can be exposed to hazardous air pollutants by breathing contaminated air, eating contaminated food (e.g., fish, meat, eggs, vegetables, etc.), drinking contaminated water, or simply coming into contact with contaminated soil, dust, or water. Some HAPs bioaccumulate, a process in which these toxins accumulate in body tissues. Humans can face long-term impacts by ingesting even small amounts of toxins over long periods of time. This can be of particular concern for Tribes who may be more exposed due to subsistence and traditional life ways. The National

Air Toxics Assessment (https://www.epa.gov/national-air-toxics-assessment) is a tool Tribes can use to determine if their area has the potential risk from certain air toxics.

Mobile source emissions are released by highway vehicles and non-road equipment and are known or suspected by the EPA to cause cancer or other serious health outcomes. While mobile source emissions of air toxics have been reduced by about 50% since 1990, these emissions continue to pose hazards to human health. Diesel exhaust is of particular concern, classified by the EPA as likely carcinogenic to humans, and was classified as a known human carcinogen by the WHO in 2012. This is of significant concern to Tribal communities that often rely on old or "legacy" fleets of diesel vehicles and equipment that produce high levels of air pollutants. Additionally, many low-income communities, including Tribal communities, are in close proximity to roads, rail yards, and ports.

2.5.4 Climate Change

The NTAA has a history of working on climate change issues and communicating the concerns of Tribes to the EPA. In 2009, NTAA developed a report on the impacts of climate change in Indian Country after a request by then-Office of Air and Radiation (OAR) Assistant Administrator, Gina McCarthy. As a result of work such as this, the EPA released the Clean Power Plan Final Rule with the goal of reducing greenhouse gas (GHG) emissions. This rule states: "Tribal communities whose health, economic well-being, and cultural traditions that depend upon the natural environment will likely be affected by the degradation of ecosystem goods, and services associated with climate change." In March of 2019, EPA issued their proposed New Source Performance Standards (NSPS) for Greenhouse Gases from New, Modified, and Reconstructed EGUs. In September of 2019, NTAA was approached by members of the US Senate's Indian Affairs Committee and the Special Committee on the Climate Crisis and asked to provide information on the impacts of climate change to Tribal communities. In June of 2019, the Council for Environmental Quality (CEQ) issued draft guidance for Consideration of Greenhouse Gas emissions in implementation of the National Environmental Policy Act (NEPA), followed in January 2020 by a more comprehensive proposal to update the rules implementing NEPA, which the NTAA believes would have serious impacts on climate change. NTAA developed Policy Resource Kits (PRKs) to alert NTAA Member Tribes and other Tribal Air Offices of these important proposed rules and information requests and provide tools for Tribes to submit comments on federal actions.

According to the U.S. Fourth National Climate Assessment (NCA4) report, climate change has already started to alter and damage the U.S. economy, environment, and human health. Chapter 12 of the NCA4 concludes: "Climate change increasingly threatens Indigenous communities' livelihoods, economies, health, and cultural identities by disrupting interconnected social, physical, and ecological systems."[39] On October 6, 2018, the Intergovernmental Panel on Climate Change (IPCC) released its Special Report on Global Warming of 1.5° Celsius. The report finds that drastic transformational actions across all economic sectors and levels, including energy, food production, behavior, and technologies, are required to limit global warming by 2030. Furthermore, the extent and magnitude of these

changes depend on the current and future policy regulations and actions to limit the amount of GHG emissions released into the atmosphere today and in the future.

The consequences of climate change will endanger public health, both directly and indirectly. The EPA's Endangerment Finding cites numerous health concerns associated with increased levels of atmospheric GHGs. The EPA predicts that the negative effects of extreme hot days will outweigh the positive effects of less exposure to extreme cold, a scenario that will disproportionately impact poor communities that cannot afford or do not have access to air conditioning. Climate change has likely already increased ozone pollution in some regions of the US and has the potential to exacerbate fine particulate concentrations as well as the many associated health impacts.[40] Changes in temperature and precipitation patterns will increase risks associated with aeroallergens (i.e., pollen and mold) and vector-borne diseases. Furthermore, climate change is leading to more frequent extreme weather events, which have the potential to severely impact Tribes, depending on their preparedness and geographic location.[41] Finally, climate change is projected to cause more frequent and severe wildfires, degrading air quality and resulting in additional adverse health outcomes (e.g., increased respiratory illnesses from exposure to wildfire smoke, impaired visibility, and disrupted outdoor recreational activities). The negative health effects associated with climate change are especially damaging for vulnerable populations including the elderly, young children, and those individuals already in poor health.

Climate change threatens Tribal lifestyles by decreasing food security, endangering culturally significant flora and fauna and forcing them towards extinction, increasing the risk of extreme weather events, and endangering public health in general. Climate change impacts are causing the loss of indigenous cultures and indigenous knowledge systems, and forcing the relocation of Tribal communities.[42] Additionally, air quality impacts exacerbated by climate change extend to hunting, fishing, and gathering rights of Tribes in Ceded Territories, lands that Tribes transferred to the federal government in exchange for off-reservation rights by a treaty agreement. Long-term climate change and near-term weather variation are both leading to changes in biodiversity, the abundance of important flora and fauna species, and seasonal changes that are impacting traditional hunting, foraging, and farming. Tribes and their members, in particular, are experiencing declines in health due to the loss of traditional food use caused by climate change.[43]

Longer summers and warmer winters in Alaska are causing sea ice to form late and melt early, reducing Alaska Natives' ability to move around their region to hunt or gather. In the upper Midwest, moose and wild rice habitats are shifting with the changing climate, restricting their availability as a food resource. Changing temperature and precipitation patterns are permanently altering biomes across the southwest, changing where many culturally significant plants can grow and even leading towards their extinction. Further, climate change is threatening food security based on subsistence agriculture, particularly in the west where a lack of rainfall has created long-term drought conditions. In the southeast, sea level rise and increasing flood risks in coastal and low-lying regions are impacting several communities and raising discussions on relocation.

A number of Tribes and Tribal organizations have committed significant resources to analyze the health effects of climate changes on Tribal communities. In particular, the ANTHC Center for Climate and Health has been conducting comprehensive community assessments for several Alaska Native Villages, such as the Native Village of Kivalina (Kivalina), focused on the impacts of climate change and related health effects.[44] For Kivalina, ANTHC has observed a rise in dust, smoke, and allergen levels along with health-related issues such as asthma, allergies, and other respiratory problems.[45] These levels and health-related issues have become most prominent during the summer months due to an increase in the number of hot and dry summers, lightning and wildfires, and trees and shrubs.[46]

Additionally, the NCA4 report highlighted over 800 climate adaptation activities across all regions that Tribal governments, Indigenous peoples, intertribal organizations, and their partners have undertaken.[47] Tribal leaders and managers are developing climate change adaptation strategies and emissions reduction actions that not only consider ecological impacts but sociocultural impacts. Land and resources are integral to the cultures and economies of Tribes. As climate change continues to impact ecological biomes, Tribal governments face institutional barriers that severely limit their adaptive capacities, including limited access to traditional territory and resources and the limitation of existing policies, programs, and funding mechanisms in accounting for the unique conditions of Indigenous communities. Federal, state, and regional institutions must support the unique political status of Tribes as sovereign nations. Tribal sovereignty, self-determination, Indigenous knowledge systems, and intertribal organizations provide vital opportunities to adapt to the potential challenges of climate change.

Section 3. Tribal Air Quality Priorities, Successes, & Challenges

This year marks the 22nd anniversary of the promulgation of the Tribal Authority Rule (TAR), which authorized Tribes to implement air programs under the Clean Air Act, and significantly assisted Tribes in gaining a foothold on protecting air quality. Tribes are excellent regulators and co-regulators of air quality. However, Tribes are faced with many challenges in the implementation of their air quality programs and projects, some of which are unique to Tribes and some that are similar to other regulatory entities. The greatest, overarching priority for Tribes' air quality programs is to protect both human and environmental health. Pursuant to the 1984 Indian Policy, EPA must take Tribal interests into consideration whenever policy or environmental management decisions are proposed that affect Indian Country.

The following sections each begin with a list of Tribal air quality priorities divided by topic area, with some examples given for specific regional concerns. It is important to note that there are many overlapping priorities due to the interconnection of most air topics. For each topic area, the list of priorities is followed by stories from across Indian Country, illustrating the successes and challenges of Tribal air quality programs.

3.1 Ambient Air

Ambient Air Priorities

- Keep strong regulations in place. Since 1955 (beginning with the Air Pollution Control Act) the United States has worked to develop appropriate regulations that ensure healthy air quality. The current deregulatory agenda is not in keeping with the protection of human health and the environment and will inevitably result in backsliding on environmental gains and a net loss to all humans and the environment.
- Update aging monitoring equipment and establish new monitoring sites where data gaps may exist.
    - Develop a clear path forward for Tribes to move from informational monitoring to regulatory monitoring.
    - Tribal monitoring sites can fill in data gaps and serve as ground truthing for modeling.
    - Co-regulators can leverage resources by working with Tribes on monitoring projects and data collection.
- Increase awareness of wildfire and other sources of smoke as threats to air quality, and develop strategies to minimize exposure to lessen or prevent health issues.
- Maintain monitoring regulations and capacity for the Criteria Air Pollutants.
    - Tribes in the Coachella Valley/Colorado River Basin Region in California of Region 9 place the Salton Sea area as a high priority monitoring need, particularly for PM.

- Provide communities with resources to decrease road dust, particularly in Alaskan Villages, the southwest, and other rural areas.
- Continue to provide and expand opportunities for training, particularly for reviewing and commenting on permits and conducting emission inventories to identify sources on and adjacent to Tribal lands and to assist in compliance enforcement activity.

Ambient Air Successes and Challenges

The Chickahominy Indian Tribe and its Developing Air Quality Program

The Chickahominy Indian Tribe, residing in their ancestral homeland in the Tidewater region of Virginia and situated between the Chickahominy and James Rivers, has a population of over 1000 enrolled citizens. Roughly 900 citizens live within a five-mile radius of the Chickahominy Tribal center in an area known as Chickahominy Ridge. Several hundred more live in other parts of the United States, including California, Florida, New York, Oklahoma, and Pennsylvania. Current Tribal lands of about 200 acres are in the Tribe's traditional territory, present-day Charles City County.

In October 2019, with funding provided by the EPA's General Assistance Program Grant, the Tribe established an environmental office, making it the second Tribe in Region 3 to do so. Using information that was gained from a survey to prioritize Tribal environmental concerns, the need to establish both Indoor Air Quality and Ambient Air Quality programs was readily apparent. The foundation in building these programs lies in training provided by ITEP that Dana Adkins, a Chickahominy citizen and the Tribe's newly hired environmental director, was able to take advantage of. As a newcomer to air quality management, the course *Introduction to Tribal Air Quality* held in Flagstaff in January 2020, provided the basic information that will be needed to get our Air Quality programs off the ground.

Currently, the Tribe's Environmental Quality office is making plans to install two air monitors on Tribal lands in order to provide useful information to our Tribal citizens as well as state and local agencies.

We look forward to working with and taking advantage of the expertise offered by ITEP and TAMS to increase our knowledge of Air Quality management and to expand the capacity of our Air Quality programs.

Clean Air Excellence Award: Confederated Tribes of the Colville Reservation and Airshed Partners

The 2019 Clean Air Excellence Award for Community Action was given to the Confederated Tribes of the Colville Reservation and Airshed Partners for their work in the Okanogan River Airshed Partnership (ORAP). Kris Ray the Tribal air quality program manager accepted the award from Pat Childers, OAR and Acting Assistant Administrator Anne L. Idsal at a ceremony in Washington DC on November 6th 2019.

Pat Childers (left) introduced Kris Ray (center) and the partnerships work. Acting Assistant Administrator Anne L. Idsal presented the award on behalf of the EPA and the Clean Air Act Advisory Committee

ORAP formed in December 2015, with this mission of seeking non-regulatory community projects, programs, partnerships and outreach opportunities which increase our understanding of $PM_{2.5}$ air pollution in the Okanogan River Airshed and help to reduce it.

Over 90 participants including the Colville Tribes, Washington State Department of Ecology (WADOE), EPA, Okanogan County Commissioners, Okanogan Conservation District (OCD), the Cities of Okanogan and Omak and many more local governments, non-profits and businesses are partners. The group focuses on smoke sources and how their actions can help decrease emissions, which include agricultural burning, home vegetation debris fires, and woodstove use. They have gathered community information, implemented projects to provide easy alternatives to burning, and developed outreach opportunities to educate the communities about smoke and potential health effects.

Projects and programs the partnership is presently engaged with include:

- Community clean up and leaf pick up events in Omak and Okanogan have been expanded and remove tons of material from being burned.
- WADOE gathered air quality information in a county wide survey that has been instrumental in guiding projects.
- Okanogan Conservation District held wood debris chipping events that diverted material from being burned or sent to the landfill. The chips are available to the community at a central location.
- Establishment of a PurpleAir sensor community network that provides the area with neighborhood scale $PM_{2.5}$ information.

- Upgrading agency $PM_{2.5}$ monitor to a Federal Equivalent Method Beta Attenuation Monitor (FEM BAM) 1020.
- Conduct a woodstove replacement and buyback program by replacing non-certified stoves for new more efficient models and removing old stoves from the area. All stoves were recycled.
- Implement media campaigns to increase awareness and promote alternatives to outdoor burning and woodstove use.
- Working with the Virginia Granger Elementary School garden to promote composting and provide an outdoor learning area. This effort was given the EPA Presidential Environmental Youth Award.
- Also pursuing community composting facility and other methods to make soil not smoke including school gardens.

With the strong support of all members, the Okanogan River Airshed Partnership will help decrease the areas communities' exposure to $PM_{2.5}$ and improve our health.

Allison Gienapp is the Air Technician for the Ponca Tribe of Nebraska Environmental Protection Department. She graduated from Missouri Western State University with a B.S. in Wildlife Conservation and Management, and started working for the Ponca Tribe of Nebraska in September of 2017 as a Brownfield/TRP Technician. She moved into the Air Technician position in July of 2018. The Ponca Tribe of Nebraska's air program focuses on IAQ and Radon Testing.

Air Resource Advisor Program

Tribes know all too well that during wildfires, smoke can make the air unhealthy to breathe. This is especially true for people that are more susceptible to smoke exposure including elders and those with respiratory or heart issues. For the past several years, Air Resource Advisors (ARAs) have been trained and deployed across the United States in order to assist with understanding and predicting smoke impacts on the public and fire personnel. They analyze, summarize, and communicate these impacts to incident teams, air quality regulators, and the public. The ARA Program is led by the US Forest Service and is part of the Interagency Wildland Fire Air Quality Response Program.

The impacts from wildfire smoke can affect both the public as well as personnel involved with the incident. It can generate threats to health and safety, create hazards surrounding vehicle and equipment use, and disrupt normal business operations. ARAs are technical specialists with expertise in air quality science including: air quality monitoring, smoke modeling, pollutant health thresholds, and communicating about smoke risks and mitigation. During wildfire incidents when smoke is a concern, their objective is to provide timely smoke impact and forecast information and messages based on best-available science. ARAs work within

the structured command team alongside Public Information Officers, Fire Behavior Analysts, Meteorologists, and others involved with the smoke event. They frequently work with other agencies such as BIA, BLM, USFS, and others to communicate public health risks, identify transportation issues, and exposure concerns to those fighting the fire.

The work can be arduous, with 14-hour days typical during deployments lasting up to two weeks. Some of the work that is performed by an ARA includes:

- Provide, install, and operate air quality monitors and interpret data for incident managers and communities as needed.
- Summarize information about current air quality conditions compared to national health thresholds and communicate findings with partner agencies and the public.
- Utilize and interpret national smoke models and run fire specific models to provide forecasts of future air quality impacts.
- Assist safety officers and others addressing incident personnel impacts from smoke.
- Advise on how to reduce risk and mitigate smoke exposure of the public and personnel.
- Support Incident Management Teams in public meetings and in media such as Inciweb, AirNow, and smoke blogs.
- Coordinate with public health agencies and air quality regulators to address their concerns about smoke impacts of fire operations on the public.

Tribal personnel are welcome to join the ARA program, and like all ARAs, are subject to acceptance into the program based in part on their experience and qualifications. Required pre-course is mandatory and extensive and to be completed prior to the weeklong, in-person training. After shadowing once or twice as a trainee during an actual deployment, the ARA may then be deployed on their own. Currently, there are a handful of ARAs that are working for Tribes, or have worked for Tribes in the past. They help to provide insight and information to the program with regards to working alongside Tribal communities, fostering collaboration and program development.

Those wishing for more information on becoming an Air Resource Advisor can view the page referenced below, and contact Pete Lahm (plahm@fs.fed.us) with the United States Forest Service.

Adapted, in part, from the Wildland Fire Air Quality Response Program at https://sites.google.com/firenet.gov/wfaqrp-external/air-resource-advisors.

Adventures in Ambient Air Sampling on the Nez Perce Reservation

The Nez Perce Tribe's Air Quality staff enjoys participating in CASTNET, EPA's Clean Air Status and Trends Network. Our site is one of 97 rural monitoring locations across the Unites States including six tribes. We started sampling in December 2015. Air samples are analyzed for concentrations of acidic pollutants, base cations, and chloride. The collective data from this national network assists EPA in "assess[ing] the environmental results due to emission reduction programs and pollutant impacts to sensitive ecosystems and vegetation" (www.epa.gov/castnet).

We also operate an Ammonia Monitoring Network (AMoN) passive ammonia sampler that is collocated at the CASTNET site. Participating in AMoN, we assist the National Atmospheric Deposition Program in gathering concentrations of ambient ammonia. In September 2016, EPA added a rural ozone monitor to our site and we transitioned from a solar-powered small footprint site to grid power. The ozone monitor is one of only four ozone monitors in Idaho.

CASTNET data also assists other agencies in their work. Idaho Department of Environmental Quality uses our ozone data in their daily decision making for their Crop Residue Burning (agricultural burning) program in north Idaho counties. During an environmental impact review of a potential gold mine (Midas Gold) located in the Tribe's aboriginal territory, the United States Forest Service used network data to evaluate critical loads to sensitive plants.

Tuesdays are weekly sampling days for all the CASTNET sites across the U.S and biweekly sample days for AMoN. Every Tuesday, Air Quality Program staff travel one and half hours up the Clearwater River to the far corner of the Nez Perce Reservation. Located in a timbered tribal unit on the rim of the Clearwater Valley the site sits at 3200' elevation overlooking Kamiah, Idaho. Winter sometimes provides an adventure to sample days as snow depths limit driving to the site. Snowshoeing up the access road adds a fun element to snowy days. The views are spectacular: the river below, canyon breaks, buttes, rolling prairies, and distant mountain peaks. The beauty renews the spirit.

Nottawaseppi Huron Band of the Potawatomi's Particulate Matter Monitoring Program Background

The Nottawaseppi Huron Band of the Potawatomi (NHBP) air program serves approximately 1,600 Tribal members, and is located on the Pine Creek Reservation in southwest Michigan.

We do not receive any air-specific funding. We run eligible components of our program with EPA GAP funds, and the rest with Tribal general funds.

Non-Tribal land located about 8.5 miles northwest of Pine Creek Reservation, showing industrial farms (circled in orange) and oil/gas wells (circled in yellow). There were zero oil/gas wells here in 2013.

One air quality issue of importance to NHBP is pollution from area sources. Of particular interest are activities relating to land use on and near local farm operations (pesticides/herbicide and manure use, oil and gas wells, etc.). With few exceptions, Tribal members live in counties with at least 40% (and as much as 80%) of land use in crops and/or are within ~20 miles of industrial farm operations (the Reservation is within five miles of three industrial farms). The Pine Creek Reservation lies within the St. Joseph River Watershed, of which about 70% is used for crop and animal production. In addition, there are currently 15,500 active oil and gas wells in the State of Michigan. One to five percent of residents in Michigan live within 1 mile of an active oil and/or gas well. Oil and gas wells are becoming more numerous near the Reservation, and particulate matter (PM) is a potential pollutant. As the number of active oil and gas well sites increases, we would like to be able to monitor the potential impacts on our air.

IMPORTANCE OF THE PROJECT

We are concerned about PM because it impacts the health of our community. According to a study by the Great Lakes Inter-Tribal Epidemiology Center ("Health Indicators of the Nottawaseppi Huron Band of the Potawatomi Compared to the National All Races Population", 2016), the NHBP population has more diagnoses for diabetes, hypertension, and coronary heart disease compared with the general US population. According to Johns Hopkins Bloomberg School of Public Health, adverse health impacts linked to PM include: development/exacerbation of chronic lung issues, heart attacks, and hospital admissions and ER visits for heart and lung disease, among others. In addition, PM is known to cause more risks for elders, children and people with heart and/or lung disease, and we have a disproportionate number of community members that are considered to be more sensitive to PM.


Street view of a rural oil and gas operation in Calhoun County, Michigan.

PREVIOUS STEPS

Our first year focusing on ambient air (2018) was an orientation year where we figured out some of our generic concerns which turned out to be: 1) Tribal member health, 2) oil and gas wells, and 3) agriculture. We decided to start exploring how to perform an emissions inventory (EI) to formally identify our concerns and create a plan. We utilized free online trainings, guidance documents, and the Tribal Emissions Inventory Software (TEISS) to get oriented, particularly the Inventory Preparation Plan (IPP) wizard. In addition, while we were getting oriented, we read about the PurpleAir monitor and its usefulness as an accurate alternative to a formalized (NAAQS-determining) PM monitor. We decided to invest ~$240 to explore PM in our area and the monitor's potential to serve as a health screening tool.

One challenge we face in understanding local PM conditions is a lack of local monitors. Of the 37 PM monitors currently operating by the State of Michigan, 70% are in its southeastern counties. An additional 31 PM monitors operate through the online air quality monitoring network known as PurpleAir (PA), 90% of which are also in southeast Michigan. Studies from reputable air quality control agencies indicate high levels of correlation between PA sensors and expensive, commercial-grade sensors used by EPA. Even though PA monitors cannot be used to make a NAAQS attainment determination, they are a promising screening tool. PM can vary from neighborhood to neighborhood, so local screenings are important. In November of this year, our PA monitor showed four days with daily PM2.5 averages that exceeded EPA recommended levels.

Pine Creek Reservation (Tribal homes pictured here just east of an active ag field) is housed in a watershed with agricultural land use in excess of 70%. We are curious what the prevailing westerlies are blowing onto the Reservation.

CURRENT AND FUTURE STEPS

Purple Air Monitoring Network and the NHBP Environmental Dashboard

We are currently operating one PurpleAir monitor to screen for potentially unhealthy air days and to draw our attention to potential sources (e.g., is it local and only our PurpleAir monitor shows elevated levels or are the monitors around us also showing similar levels?). The nearest state-run monitor is 20 miles away (to the northwest). The next nearest PurpleAir monitor is 55 miles away (to the southwest). We have purchased an additional six PurpleAir monitors to strategically expand our screening to areas where Tribal members are living. We plan to display data from our Tribal PurpleAir monitoring network on the NHBP Environmental Dashboard. The Dashboard is a website for Tribal membership that displays local environmental conditions and highlights Environmental Department program areas. It includes local, live weather, PM, and water quality readings. It also has an interactive map of Tribal parcels, and local radon and environmental assessment actions. In addition, the Dashboard has a live underwater camera feed. The PM screenings from our local PurpleAir

monitor (housed at the government campus) are used to apply an existing EPA Air Quality Index to our local, unique Environmental Dashboard. In 2020, we will continue to refine and enhance the PurpleAir part of the Dashboard for our membership, including any newly online Tribal PurpleAir monitors.

Goals for Data
In 2020, we plan to expand our screening of neighborhood-scale PM levels with PA monitors in other counties with an NHBP presence. We would like to involve the NHBP Community in the project, and are hoping to get volunteers willing to have monitors at their homes. After we complete our EI, we will know if we want a more formalized PM program with a more expensive monitor capable of making NAAQS determinations. Our long term goal is to be able to impact policy relating to sources/impacts of particulate pollution that will help improve and/or protect our community's air.

TAMS Center Sensor Technology Course
On November 13-15, 2019, the Sensor Technology course was held at the TAMS Center. The sensor technology course was provided for the first time and was developed from a request by Tribes to get information about the use of the emerging sensor technology. Sensors are a type of air monitoring equipment that is less costly than the more traditional Federal Reference Method/Federal Equivalent Method (FRM/FEM) air monitoring equipment.

The team of instructors included Amanda Kaufman, EPA-OAQPS; James Payne, EPA-OAQPS; Darold Wallick, Pala Band of Mission Indians; Michael King, TAMS; Farshid Farsi, TAMS; and Christopher Lee, TAMS. Seventeen Tribal professionals from different Tribal programs nationwide attended the training course.

The goal of this course was to provide information on the current status of the sensor technology with regards to the uses of the data obtained. Oftentimes, Tribal programs have a need to monitor for various reasons, but the robust FRM/FEM monitoring equipment is expensive and thus unobtainable. The sensors are more cost effective and present an avenue that Tribes may pursue to obtain monitoring information.

Participants in this course received information on what sensors are and the "fit for purpose" use guidance developed by EPA. An example QAPP for a sensor monitoring project was explained and shared with the participants. Several sensors from different manufacturers were available to allow the participants an opportunity to conduct hands-on operation of the equipment. Information on the data management application from the EPA, the MAT (Macro Analysis Tool), was provided. The participants also participated in designing their own sensor air monitoring project. Lastly, information on how to report the data was provided.

The feedback from the participants was very positive. A couple of comments that capture the perspective of most of the course participants include, "The hands-on activities – set up monitoring plan & working w/data were good. Learning what sensors are good for (and) for

what purposes, what monitoring situations, etc…," and, "The activities usually helped me to understand and apply all of the information from the entire week."

3.2 Indoor Air Quality & Healthy Homes

Indoor Air Quality (IAQ) & Healthy Homes Priorities

- Increase funding, and reduce match requirements, for funding under the State Indoor Radon Grants (SIRG).
- Reinstate IAQ as an EPA stand-alone funded program. IAQ areas of particular concern include:
    - Mold/moisture control assessments and remediation
    - Wildfire impacts of smoke intrusion
    - Methamphetamine residue testing and remediation
    - Vaping/e-cigarette and cigarette impacts and outreach
    - Carbon monoxide testing, education, and prevention
    - Wood stove equipment replacement, education, and outreach
    - Road dust
- Include ventilation standards in guidance for Healthy Homes energy efficiency upgrades.

IAQ & Healthy Homes Successes and Challenges

NTAA Indoor Air Quality (IAQ) Work Group Update for STAR

The NTAA Indoor Air Quality Work Group (NTAA IAQ WG) was formed in 2016 and includes over 80 Tribal and EPA professionals with an interest in indoor air quality in Tribal homes and other buildings. On average, Americans spend nearly 90% of their lives indoors, so NTAA's IAQ Work Group strives to help improve IAQ in Indian country by developing policy actions on IAQ issues and by providing resources for Tribes including recorded webinars and presentations. Topics the IAQ Work Group cover include the following:

- IAQ home assessments
- Healthy Home IAQ Kits
- Water intrusion issues
- Radon testing in Tribal homes and communities
- Radon mitigation
- Funding needs for IAQ activities in Indian country

Members of the NTAA IAQ WG, led by Ernie Grooms with the Red Cliff Band of Lake Superior Chippewa in Region 5, were active this year to publish Tribal Healthy Home Guides with partners from the U.S. Department of Housing and Urban Development's Office of Lead Hazard Control and Healthy Homes, the U.S. Department of Agriculture's National Institute of

After high school, Ernie Grooms served our country in the United States Marine Corps. Upon completion of his tour, he began a construction career in both infrastructure and carpentry for about 30 years. He also operated the Water and Sewer office for the Red Cliff Band of Lake Superior Chippewa for 8 years in both water distribution and wastewater treatment plant operations. After a brief break, he returned to the Red Cliff Tribe as the air quality program manager with specifics to IAQ, performing assessments and aiding in decision making regarding IAQ. He became the co-lead for the NTAA IAQ work group in early 2019.

Food and Agriculture and the University of Missouri's Healthy Homes Partnership. Members of the NTAA IAQ WG provided feedback and edits that took place over several conference calls and webinars. The Tribal guidance documents are focused on four different audiences including Families, Tribal Leadership, Medical Professionals, and Housing Professionals. The Tribal Healthy Homes Guides can be downloaded on NTAA's website here: https://www.ntaatribalair.org/tribal-healthy-homes-guidelines/.

The NTAA IAQ WG web page was updated this year and includes recorded webinars on several IAQ topics including how Tribes can develop green building codes and clean up Tribal housing impacted by methamphetamine use. The NTAA IAQ WG continues to engage in the National Radon Action Plan and will continue to plan and implement informational webinars for Tribes. Lastly, work continues to finalize a Tribal Healthy Homes mobile application for youth to access the information on their smart phones and devices. NTAA IAQ WG calls are held on the third Thursday of every other month and are open to all! To get on the listserv and receive reminders about upcoming calls, contact Andy.Bessler@nau.edu.

NTAA Wood Smoke Work Group

In 2018, the NTAA and EPA established the NTAA Wood Smoke Work Group (WSWG) to collaborate with Tribal, state, EPA and other involved entities with a purpose of researching, developing, and implementing a national residential wood stove program to address both the indoor and ambient air quality impacts from residential wood/coal burning stoves, as well as to address other wood smoke related issues on Tribal lands.

In March 2020, the NTAA WSWG partnered with the Hearth, Patio and Barbeque Association (HPBA), a trade organization representing the nation's wood stove retailers, to implement a process to review and approve proposals for non-commercial applicants to participate in HPBA's "Stoves to Homes Initiative." EPA's New Source Performance Standards (NSPS) for residential wood heaters requires that unsold Step 1 EPA-certified residential heaters be donated to non-commercial entities before May 15, 2020. Proposals were drafted, distributed, evaluated, and selected by NTAA WSWG members to facilitate a partnership with wood stove

retailers to accept and equitably distribute donated residential wood heaters to Tribal communities across the country. Four applicants were approved by the NTAA WSWG to participate, including the Alaska Native Tribal Health Consortium, Environmental Initiative, Red Feather Development Group, and Wisteqn'eemit, a NGO operated by the Nez Perce Tribe Air Quality Program. Donated stoves were transferred on paper by May 15, 2020, with the physical delivery of the heaters within 90 days, or by August 14, 2020. In response to the COVID-19 pandemic, EPA proposed to extend the NSPS deadline to provide regulatory relief and allow retailers to sell Step 1 stoves until November 2020. Despite the extension, 66 stoves were donated on May 15th with more expected to be donated by the end of 2020.

Other WSWG accomplishments:

- Completed and provided a three-part webinar series (2019 action item):
    1. Basics 101 – 97+ attendees.
    2. Change Outs, Fuel types, Do's & Don'ts – 70+ attendees.
    3. Tribal Stories, Successes/Challenges, Program Implementation – 45+ attendees.
- Identified and created partnerships with federal, state, and locals. (2019 long-term action item)
- Held successful wood stove break out session at the Alaskan Air Summit.
- Hosted members of the California Air Resources Board to discuss their experiences funding wood stove change out programs across the state to help Tribes better understand how to implement change out programs.
- Researched wood smoke and residential heating health messages.
- Participated in drafting the agenda for the 2020 Residential Wood Smoke Workshop and

Secody, a member of the Navajo Nation from Ganado, Arizona, has been with EPA for 14 years. He has a lot of experience in the agency, having worked at Region 7 in the Office of Policy and Management, Region 6 as the Tribal Program Coordinator, and EPA Headquarters as the National American Indian/Alaska Native Program Manager in the Office of Civil Rights. Most recently, Secody worked in Region 9's Superfund Division on the implementation of the US EPA 5-Year Plan on Addressing Uranium Contamination on the Navajo Nation. Secody's background includes exceptional knowledge of federal Indian policy, Tribal governments, the US Federal System, and intergovernmental relations. Before joining EPA, he worked with Tribal Governments on the Arizona Colorado Plateau Ecosystem Management Project as a Research Associate for Northern Arizona University, and served as a Special Diabetes Project Consultant to the Navajo Area US Indian Health Service on the Navajo Nation. Secody earned his BS, Master's of Public Administration, and a PhD from Northern Arizona University, Flagstaff, AZ.

WSWG co-lead presented on Tribal Changeout Challenges, Partnerships and Opportunities.

WSWG next steps:

- Identify strategies to help build residential reduction programs without change-out programs.
    - What tasks can be done to begin building change-out program components? Some ideas so far are: IAQ assessments, particle count collection, emissions, and outreach and awareness.
- Develop strategies to raise needs awareness for tribal air/wood stove programs to decision makers.
- Compose a white-paper on the impacts of residential burning in Indian Country.
- Continue gathering challenges, successes, and other vital information from Tribes to continue to provide meaningful and relevant work group calls.

The WSWG continues their dedication to hearing Tribal voices to help raise awareness of residential wood stove and smoke issues in Indian Country. The WSWG leads continue to record issues, challenges, and successes to include when presenting or reporting out on the national platform. We would like to thank the Tribes for their support and allowing us to share your work when we are given the opportunity. NTAA holds WSWG calls every other month, typically on the third Thursday at 2pm Eastern Time. For more information and to join the calls, contact Andy.Bessler@nau.edu.

Woodstove Replacement Program: Smoke Reduction - One Stove at a Time

The air quality program (AQP) of the Confederated Tribes of the Colville Reservation conducted a woodstove replacement program to reduce smoke emissions in homes on and off the Reservation. The Okanogan River Airshed emphasis area represents 1% of Okanogan County but 30% of the population and frequently has the highest measured PM2.5 concentrations in Eastern Washington. Reservation lands represent 45% of the area and 16% of the population. The dynamics of air flow in the valley and the propensity of local inversion mean people are exposed to smoke from home heating frequently during the heating season. Several surveys have shown that about 46% of the homes in the emphasis area heat with wood and use 4 or more cords each year. The AQP initially received $100,000 from EPA and added $70,000 more from other sources to conduct this program.

Criteria for participating in the program were kept as simple as possible: homes must be in the emphasis area and the stove currently in use must be uncertified. We later added a provision to replace all unsafe stoves because of their high occurrence levels. The AQP contracted with a local company that had the capacity and expertise to provide all material and labor, which also helped keep the administration of the project to a minimum.

Forty year old stove vented through a masonry chimney that had never been cleaned. We had to close off and abandon the chimney, replace the hearth pad, and disconnect the trash burning in the kitchen.

We sought applicants through the Okanogan River Airshed Partnership and several Tribal networks and were surprised at the response. We received many more applications than we had funds. Applications came from both within and outside of the emphasis area, with 52 qualifying from within the area, 6 from within the area but having a certified stove, and 32 from outside of the area. The first round of replacements occurred during FY 2019 with the installation of 25 stoves. The second round consisted of replacing 15 stoves in FY 2020.

The AQP conducted the initial inspection to determine if the stove was uncertified and met the location requirements, then passed the client's contact information to the contractor. The contractor completed their evaluation and submitted a quote to the AQP for approval. Once these steps were completed, the contractor installed a certified stove or pellet stove that met building code and safety requirements. This included smoke alarms and carbon monoxide and carbon dioxide detectors, because most homes did not have these. We also provided the home with a stove top thermometer and wood moisture meter. Before leaving the home, the contractor provided an extensive demonstration on how to use the stove efficiently and did a follow-up visit after a couple of months. The AQP will follow up with the clients after the first heating season to see how they liked the stove and the program in general.

New Lopi Republic woodstove with new piping through the attic and roof.

Using the EPA woodstove calculator, the project is reducing emissions of particulate matter in the area by 4.4 tons per year and total emissions by 29 tons per year.

Fixing the safety issues that 1/3rd of the stoves in the program had is the most rewarding development. Our contractor said that several stoves were one spark away from burning down the house. We are also expecting people to use less wood (1/2 to a 1/3rd of their previous usage) and yet have warmer homes!

Lessons Learned

- Do Your Homework: how do you want to structure the program
- Talk to your potential vendors/installers
- Understand the permitting system
- Keep great records: funds, contacts, pictures, invoices
- Provide detailed information
- Consider a woodstove buyback program
- Enjoy meeting and talking with great people

Culture as a Means to Prevention of Commercial Tobacco Use

The American Indian Cancer Foundation (AICAF) is a national, Native governed, nonprofit established to eliminate cancer inequities experienced by Indigenous peoples through improved access to prevention, early detection, treatment, and survivor support. AICAF's prevention work provides technical assistance to Tribal communities and organizations to implement Policy, Systems, and Environmental (PSE) changes to improve health outcomes and reduce cancer risk. Current focus areas include commercial tobacco cessation, healthy eating, and physical activity.

AICAF's training and technical assistance promotes the use of traditional tobacco use as a culturally sensitive alternative to commercial tobacco prevention and cessation. Throughout AICAF's traditional tobacco work is the message, "Keep Tobacco Sacred." This messaging allows for the distinction between traditional tobacco and commercial tobacco, including e-cigarettes, which supports traditional teachings as a tool for prevention and cessation. Tribal partners emphasize the importance of keeping tobacco sacred within their Tribal communities, and have taken it further by implementing policy. For example, a Tribal community in Minnesota implemented a tobacco policy that prohibits harmful, non-ceremonial use of any kind, including e-cigarettes, within non-commercial, community buildings, including within 50 feet of entrances, exits, and windows. This policy also applies to playgrounds and outdoor recreational areas. While the policy prohibits the harmful use of all commercial tobacco products, it also states that sacred traditional use for prayer, ceremony, and memorial is allowed, promoted, and supported on all community property and in all buildings. These initiatives promote a healthier environment, including indoor and outdoor air quality, meanwhile promoting the use of traditional tobacco.

This past November, AICAF implemented its inaugural Sacred Breath campaign. Aligning with National Lung Cancer Awareness Month, Sacred Breath aims to improve lung health across Indian Country by encouraging community members to get screened and participate in traditional activities, and to promote commercial tobacco avoidance and cessation. During this campaign, AICAF developed an infographic titled, "E-cigarettes are Not Our Tradition," a culturally-tailored resource highlighting the dangers of e-cigarette use, especially for youth. The Sacred Breath campaign also reached youth through the, "Say No to Commercial Tobacco Youth Meme Contest." Youth participated by creating memes illustrating the importance of keeping tobacco sacred and avoiding the use of commercial tobacco and e-cigarettes.

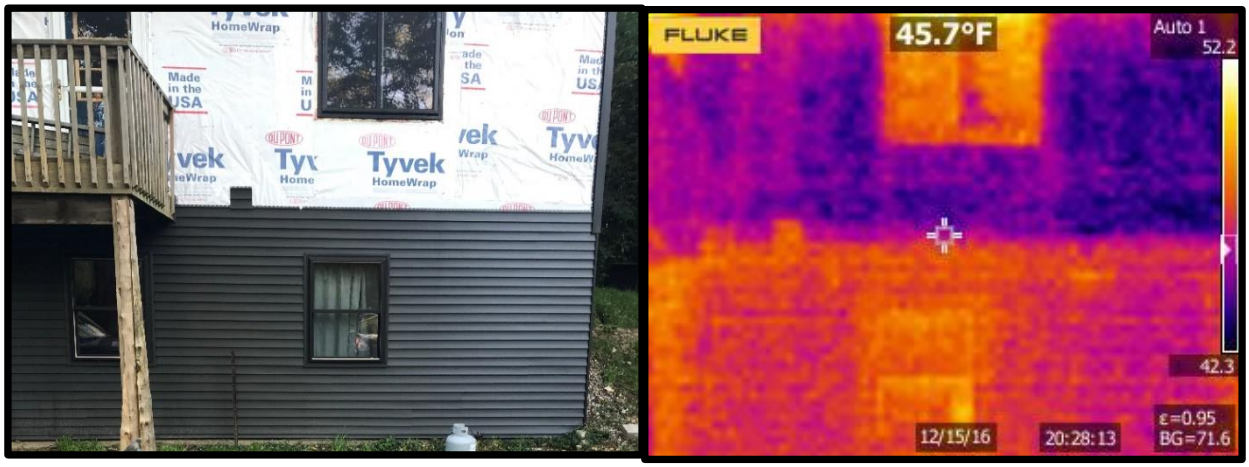
By promoting the traditional use of tobacco as a sacred offering, AICAF continues to engage Indigenous communities in ways that honor culture as a means of prevention.

Gun Lake Tribe's Indoor Air Quality Progress

The Match-E-Be-Nash-She-Wish Band of Potawatomi Indians (Gun Lake Tribe) is a federally recognized Indian Tribe located in southwest Michigan, approximately 25 miles south of Grand Rapids. The Gun Lake Tribe has 581 members currently enrolled. The reservation is composed of 735 acres held in trust by the United States Government for the Tribal community and possesses no exterior boundary.

The Gun Lake Tribe continues to implement the Air Quality/Quality Assurance Plan to provide indoor air quality audits to improve the overall environmental health of Tribal citizenry. The Indoor Air Quality Program (IAQ), which is managed by the EPA General Assistance Program, includes the following testing parameters: particulate matter, relative humidity/dew point, mold/radon, moisture testing throughout the home, and infrared readings. A general home health assessment is reported to each citizen at the conclusion of these audits. The Tribe provides indoor air quality retrofits through the Conservation Incentive Program, funded through the general budget. The IAQ program has identified radon issues within three citizens' homes in fiscal 2020 and the Gun Lake Tribe provided funding to mitigate these issues. Other issues the IAQ program has identified include; reducing energy needs, reducing allergy issues, and improving general indoor air quality. The Gun Lake Tribe Environmental Department is proud to implement this program in order to serve Mother Earth and our citizens. The Gun Lake Tribe continues to gain training and air quality equipment to grow these capacities.

The Tribe continues to implement the climate change adaptation plan which was adopted in 2015. This includes low-emission/hybrid vehicle purchasing policies, solar feasibility studies, and increasing energy efficiency practices within Tribally owned buildings. In 2020, the Environmental Department submitted a Department of Energy grant "Jijak Gises Project" in order to remove the Tribe's Jijak property off the conventional electrical grid.



Infrared showing second level poorly insulated (blue).

The Čaŋlí Coalition of CRST's Work on Vaping, E-cigarettes, and Other Smoking-Related Issues

The Čaŋlí Coalition of Cheyenne River Sioux Tribe (CRST) was founded in 2009 with the mission to eliminate secondhand smoke from indoor public places. Čaŋlí (pronounced CHUN-lee) is the Lakota word for commercial tobacco. The Coalition uses a multi-generational, grassroots approach to policy advocacy and education on the dangers of commercial tobacco.

In 2015, after 6 years of advocacy from the Čaŋlí Coalition, the CRST became the 4th sovereign nation in the U.S. to pass a comprehensive indoor smoke-free air policy.[48] This advocacy experience and relationship building put the Čaŋlí Coalition is an optimal position to take down JUUL, the most popular e-cigarette company. In 2019, JUUL offered free vapes to CRST Tribal members through a "Switching Program" under the guise of a smoking cessation program.

Čaŋlí Coalition members educate the community on the dangers of vaping.

Newspaper and social media ad on vaping awareness.

Companies like JUUL have used Big Tobacco's playbook to mimic decades of marketing tactics to target minority populations, such as Native American people. The Čaŋlí Coalition activated their framework to inform the community members of the threat and convince Tribal leaders to decline JUUL's "Switching Program."[49] Rae O'Leary of the Čaŋlí Coalition was invited to testify to U.S. Congress in a hearing, "Examining JUUL's Role in the Youth Nicotine Epidemic."[50] Following this hearing, the U.S. Food and Drug Administration (FDA) issued a warning to JUUL to stop illegal marketing to Tribes and others.[51] Additionally, JUUL admitted to offering free product and the "Switching Program" to at least eight Native American Tribes, but fortunately no Tribe accepted the offer.[52] A video documenting the Čaŋlí Coalition's work and experience with JUUL can be viewed on YouTube here.

Winner of a local coloring contest on e-cig prevention

In addition to combating JUUL's exploitation and illegal marketing to Native American people, the Čaŋlí Coalition also made a concentrated effort to educate their local Tribal community on the dangers of vaping. A few examples include: newspaper and social media ads, educational radio programs and PSAs, and strengthening tobacco policies to include e-cigarettes. The Čaŋlí Coalition works with trained student volunteers to educate their peers, parents, and school staff through school presentations on vaping. Follow the Čaŋlí Coalition and stay up-to-date with ongoing efforts on our Facebook page, @CanliCoalitionOfCRST.

White Earth Nation's Tobacco Policies to Protect IAQ

The White Earth Nation has developed policies related to tobacco usage to help protect indoor air quality. At the White Earth Nation, the use of tobacco products and e-cigarettes (electronic cigarettes) is permitted in designated areas only. Smoking and the use of tobacco products is not allowed near the public entrances of either the government buildings or the Shooting Star Casino. Other places that tobacco products and/or the use of e-cigarettes are prohibited include: company vehicles, personal vehicles during business use and while transporting clients, public buildings, and offices.

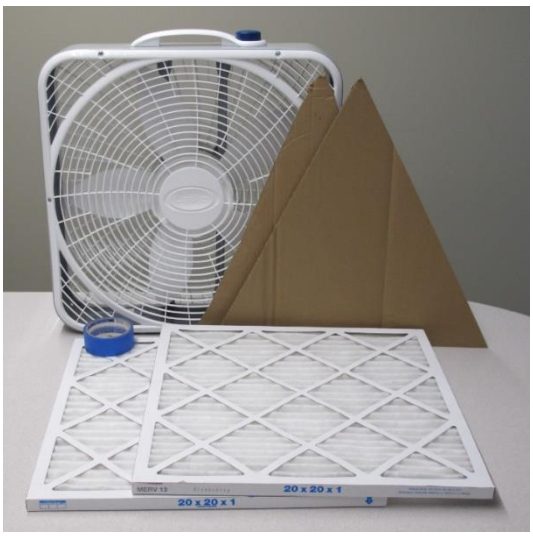
The Shooting Star Casino has designated spaces outside buildings for employees to smoke. While the Casino gaming floor does allow guests to smoke, the offices, hotel, and restaurants do not allow smoking or the use of e-cigarettes.

DIY Box Fan / Filters Decrease Wildfire Smoke in Our Lives

When wildfire smoke concentrations are high, the standard recommendation is to stay indoors and keep the windows and doors shut. This may work for short duration events but on the Confederated Tribes of the Colville Reservation, we are seeing concentrations in the "Unhealthy" to "Very Unhealthy" categories for extended periods.

Your first choice for wildfire smoke filtration should be a made-for-purpose manufacture device that is UL listed and proven safe for continuous use. Several of these are usually needed in a home to provide full coverage. You can use a filter in a closed room to create a home cleaner air shelter to provide respite from the smoke.

We explored several options for constructing box fan / filter units and to checkout possible problems associated with air flow. Air flow through the fan with two filters was greater than the amount measured for one filter, cleaning more air with less stress on the fan.



What you need: one 20" box fan, two 20" x 20" MERV 13 filters, tape, and two 21" per side cardboard triangles.

Step 1: Lay two filters side by side with the flow arrow facing up and tape together to form a hinge.

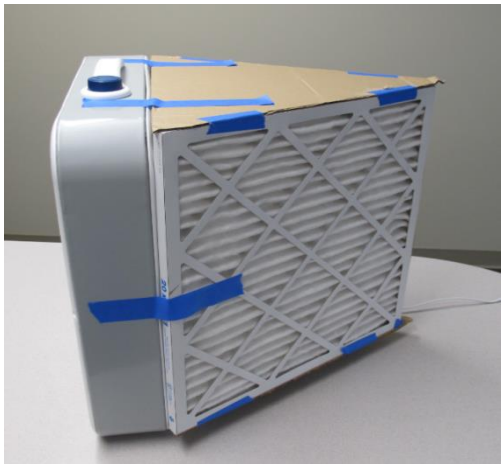
Step 2: Stand filters up and tape a cardboard triangle to the top; flip over and tape the second triangle on.

Step 3: All that remains is to tape the filters to the box fan. Gaps are OK and help with air flow. Use the roll of tape for a spacer under the filter assembly to match the fan better.

Step 4: Keep a clean filter to compare with the used filters to help determine when they should be changed. Dirty filters are less efficient and constrict airflow.

Remember extra air flow around the filters is great, and easier on the fan.

The Air Quality Program of the Confederated Tribes of the Colville Reservation produced a 5 minute video demonstrating the construction and an explanation of why they are needed. A DIY institutional factsheet is also available: https://www.cct-enr.com/box-fan-filter.



We all should have these DIY or made-for-purpose filters on hand before wildfire smoke season begins in order to be smoke ready (*also see "Smoke Ready Communities" in the Emergency Management section below*).

3.3 Hazardous Air Pollutants

Hazardous Air Pollutants (HAPs) Priorities

- Improve consultation on NAAQS Risk and Technology Reviews (RTRs).
    - Region 5 places a high priority on the RTR for taconite iron ore facilities.
- EPA must account for cumulative exposures of at-risk populations in its rulemaking. Tribal lifestyles often include a higher consumption of fish, plants, and animals that are reliant on environments which are often contaminated with toxins and pollutants. Consumption of wild foods and Tribal traditional practices are often suppressed because of contamination or depressed populations from impaired ecological conditions. Currently, many state and federal agencies set standards based on consumption levels of the general population, not on Tribal populations, who consume at a subsistence level and consume higher levels seasonally or in conjunction with cultural events. Some EPA regions have incorporated Tribal consumption rates when setting standards but this approach has not been used by all EPA regions, even though the approaches used have been well supported and well documented. Having standards set by the EPA rather than states is desirable because federal agencies are required to consider the best interests of Tribes under federal trust responsibility doctrine.
- Although progress has been made, EPA should continue to focus on air toxics and their health impacts. Carcinogenic air pollution is still a threat and of grave concern to Tribal communities.
- Maintain and expand monitoring for HAPs.

HAPs Successes and Challenges

Hazardous Air Pollutants as a Cross-Media Concern

As described in *Section 2.5.3 Hazardous Air Pollutants and Mobile Sources*, hazardous air pollutants (HAPs), also known as toxic air pollutants or air toxics, make up a category of

chemical air pollutants that are carcinogenic or are linked to other serious health impacts, such as birth defects. There are at least 187 HAPs, regulated on a by-source category basis according to the source category from which it is emitted. Most HAPs are co-produced with other sources of anthropogenic pollution, such as mobile sources, stationary sources, and indoor sources. Examples of HAPs include:

- benzene, which is found in gasoline;
- perchloroethylene, which is emitted from some dry cleaning facilities;
- methylene chloride, which is used as a solvent and paint stripper by a number of industries; and
- dioxins, asbestos, toluene, and metals such as cadmium, mercury, chromium, and lead compounds.

HAPs often create a cross-media problem: HAPs in the air deposit on soils and waterways, contaminating rivers and lakes (and therefore the ecosystems dependent on the soil and water) which can then be ingested by humans through agriculture, fishing, and hunting.

Landfills can be a large source of not only greenhouse gas emissions (in the form of methane) but also of HAPs, with acetone being just one of many potential HAPs emitted and/or leached from the landfill, causing cross-media concerns.

There are ongoing regulatory issues that are unresolved (such as taconite and mercury in the *Hazardous Air Pollutants and Risk and Technology Reviews* article, below) and involve concerns surrounding cumulative exposure. Communication of risk and regulation that accounts for cumulative exposure is a major barrier to protecting human health.

Hazardous Air Pollutants and Risk and Technology Reviews

Over the past year, the EPA has issued Risk and Technology Reviews (RTRs) on several regulations for hazardous air pollutants (HAPs) emitted from a number of different source types, or categories. HAP emissions from these source categories are subject to Maximum Achievable Control Technologies, or MACT, and their emissions are limited to numerical standards, like pounds per hour or grams per unit of production. These RTRs were supposed to be completed eight years after the original MACT standards were issued but the agency fell several years behind schedule, resulting in court-ordered deadlines being issued.

The RTRs serve two purposes. One is to determine how much risk to public health still exists after implementation of the original MACT standard, and the other is to conduct a review of any new control technologies that may have become available since the original MACT standard was promulgated. Region 5 Tribes and the NTAA recently became involved in the public review and comment period for the Taconite MACT RTR, voicing opposition to the EPA's findings. Region 5 Tribes and NTAA found common ground with the Minnesota Pollution Control Agency, who also opposed similar segments of the RTR.

Although Carol Kriebs is not new to the NTAA Executive Committee (EC) – she served a term while working for the Sac and Fox Nation of Missouri in Kansas and Nebraska – she is new to the role of Secretary. She is the Environmental Director for the Kootenai Tribe of Idaho, and the Primary Representative for Region 10. Carol has also been a part of many of workgroups over the years, both within and outside of the NTAA, including Indoor Air Quality, STAR, NTAA Policy Advisory Committee, Tribal Science Council, Tribal Pesticide Program, and others. Her goal is to continue to fight for clean air across the nation for generations to come.

Taconite is a type of low-grade iron ore that is mined only in the States of Minnesota and Michigan. Taconite mines are very large sources, emitting thousands of tons of criteria pollutants each year, along with hundreds of pounds of mercury, which is an issue of concern for Tribes living in these states and across the nation. Mercury is a neurotoxin and is particularly harmful to developing fetuses and young children. Exposure to mercury can impact cognitive thinking, memory, attention, and language, as well as fine motor and visual spatial skills. The RTR found that there is little residual risk remaining from mercury emitted from these sources and found there were no new feasible technologies available to control these emissions. These findings are in opposition to public health findings and to requirements the State of Minnesota has imposed on these sources under a Statewide Total Maximum Daily Loading rule, requiring substantial reductions in emissions by the year 2025. The EPA also removed mention of elongated mineral fibers, which are very similar in structure to asbestos and may be linked to several cases of mesothelioma in miners.

Mercury is an issue of concern to many Tribes because it ends up in the food chain, primarily in fish, which are a very important food source and cultural resource to many Native people. Mercury can also be harmful to many types of wildlife that consume fish, including eagles, bears, otters, mink and loons. These species also have cultural importance to many Tribal people.

Microplastics in the Air: A Growing Threat

Each year, over 390 million metric tons of plastics[53] are produced, including 60 million metric tons of fibrous plastics like nylon and acrylic. These fabrics break down but do not disappear. In fact, most plastics break down into microplastics (MP). Studies conducted over the past year indicate deposition of MP in remote, pristine mountain catchments like the French Pyrenees.[54]

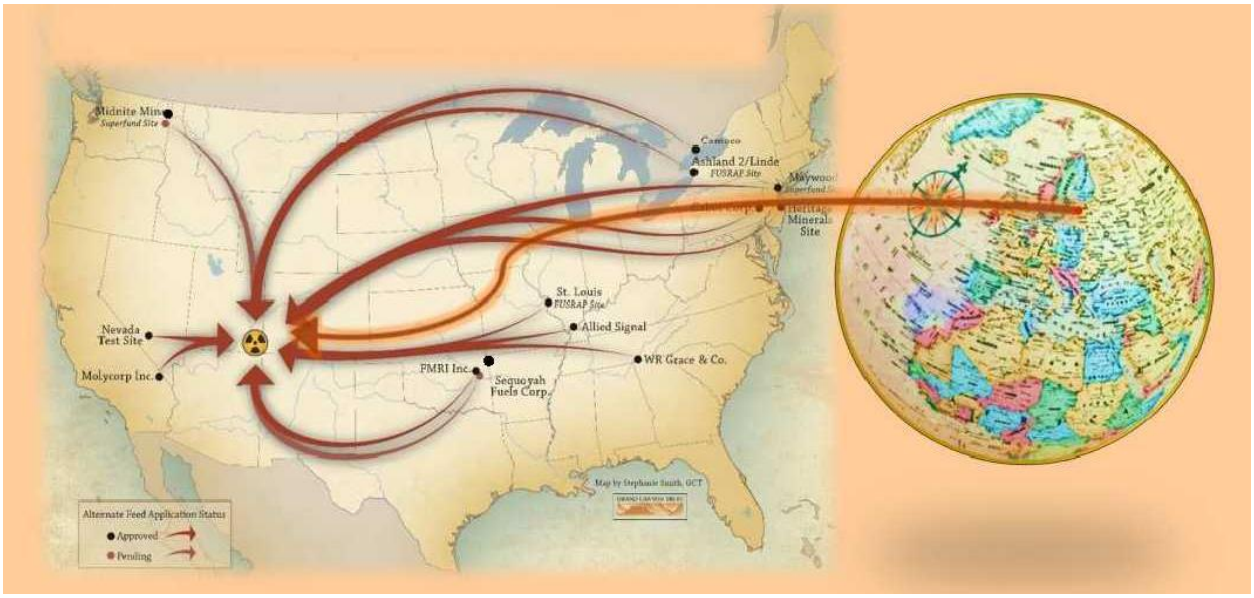
More research is needed to determine if the presence of MP is a public health risk, however several studies do indicate impacts to human lungs. For example, studies among nylon flock (fiber) workers demonstrated that workers had a higher prevalence of respiratory irritation.

Interstitial lung disease is a work-related condition that induces coughing, dyspnoea (breathlessness), and reduced lung capacity in workers processing either polyester, and/or nylon fibers.[55]

EPA has a process to evaluate emerging pollutants and the atmospheric deposition of MP deserves evaluation to determine if this is a threat to public health.

The Ute Mountain Ute Tribe and Neighboring Uranium Mill Update

The White Mesa Community of the Ute Mountain Ute Tribe (UMUT) has raised concerns about the neighboring White Mesa Mill Uranium Mill (Mill) since the 1980s when the Mill was built. *(See The Ute Mountain Ute Tribe, the Neighboring Uranium Mill and NESHAP Subpart W,* from the 2019 STAR*)*. Since the Environmental Programs Department (EPD) was established at the Tribe in the early 1990s, the department has been overseeing the Mill's activities from the perspective of the White Mesa Community and effects on the environment. This pertains to the ongoing air monitoring at White Mesa and water quality assessments in area springs and watersheds, as well as participation in review of Mill license amendments or Mill strategies or plans. In 2019, several more actions from the Mill justified a response from the Tribe's EPD.



White Mesa Uranium Mill Alternative Feed Material Locations graphic. Photo credit: Grand Canyon Trust with edits by Janice Archuleta.

In 2019, the Mill owner, Energy Fuels Resources Inc. (EFRI), requested the Trump Administration to obtain a quota of uranium used by nuclear power industry from domestic sources. Currently the industry relies heavily on the supply of uranium from Russia, which has flooded the market. Instead of approving, Trump created the Nuclear Fuel Working Group (Working Group) to study the current state of domestic nuclear fuel production. While national nuclear groups made recommendations in support of the Mill's petition to the Working Group, the EPD and other citizen groups from the area sent letters opposed to the

plan, based on the lack of a comprehensive analysis of the impacts of the Mill on the White Mesa community and the environment. In April 2020, the Working Group make recommendations for $150 million to advance the domestic uranium supply, thus supporting the White Mesa Mill's demands.

Tribal protest at the Mill in 2016. Photo credit: Janice Archuleta

The Mill also submitted several amendments requests to the Division of Waste Management and Radiation Control (DWMRC) of the Utah Department of Environmental Quality. One amendment requested building one more set of tailings cells and liquid impoundments for permanent radioactive material disposal. Several other amendment application requests included receiving alternative feed materials. These alternative feeds are materials that differ from the original use of the mill which was to process uranium ore from the Colorado Plateau mines in the area. The application causing the most alarm to the EPD involved uranium from a corporation in the Republic of Estonia, a country in northwestern Europe that was once a part of the former Soviet Union. The uranium-containing solids were a result of tantalum and niobium processing. Previously the Mill had accepted alternative feed material from all over the United States and Canada, but not from other foreign countries, half a world away.

To further explore potential impacts from the Mill, the UMUT's Air Quality Program, part of the EPD, had petitioned the Agency for Toxic Substances and Disease Registry (ATSDR) which operates under the Centers for Disease Control to study the Mill's impacts on the Tribe. The ATSDR was given approval in 2019 to go forward with the review. The EPD is coordinating data sharing and other past studies with ATSDR. We are optimistic that constructive recommendations will come of this study.

In addition to the air quality concerns, the water quality at the Mill's ground water monitoring wells have been exceeding the established limits since 2004 and are continuing to degrade further. The EPD has been vigilant with correspondence to the Utah DWMRC and requested more monitoring wells in strategic areas which Utah has conceded upon. However, there are other water quality matters where no significant response has been received on behalf of the safety of the Tribe. The Tribe has also partnered with EPA this year through a Regional Applied Research Effort (RARE) Program grant to conduct more groundwater monitoring around the perimeter of the facility.

Tritium Ventilation in Northern New Mexico

Tribes in Northern New Mexico face a unique challenge when it comes to managing air quality for their Tribal lands. The air is generally "good" with occasional regional haze and smoke from wildfires in the summertime and particulate matter from dirt roads. However, as industries and businesses increase and develop near Tribal lands there are not any air quality specialists to assist in reviewing permits.

This became an issue in the spring of 2020 as the Los Alamos National Laboratories (LANL) went forward with plans for "Venting of Flanged Tritium Waste Containers (FTWC) at TA-54" in Los Alamos County, New Mexico. At the LANL site, some low-level waste had small amounts of lead, deeming the waste as hazardous. This prohibited storage of the waste from the predetermined disposal shaft onsite and therefore required relocation to an offsite location. The waste was slotted for transport to the permanent disposal site, but there was concern about a buildup of hydrogen gas, making transport dangerous. Plans were made to relieve the hydrogen/tritium gas pressure that may be in the containers. There were four containers of tritium, each in an 85-gallon drums with unknown concentrations of other hazardous materials.

A permit application was submitted to meet the criteria in the radionuclide NESHAP, the portion of the Clean Air Act that regulates airborne emissions of radionuclides for DOE facilities and is a requirement from 40 CFR 61.07 and 40 CFR 61.96. The application outlined the proposed plan to vent the headspace gas of the four FTWC containers which with filtration would be under the annual limit of 10 millirems per year for LANL.

Under the proposed plan, 115,000 curies of tritium would be remediated. This process would occur by sampling each drum; and the concentration of the tritium in each drum would be used to determine the next course of action. If readings from the sample indicated no pressure, the container would be safe for transport. Pressurized containers would be vented in a controlled environment utilizing special equipment that is designed to capture the tritium in vapor form, then would be slated for transport.

In March 2020, Pueblos in Northern New Mexico read in newspapers – rather than through direct notification – about the remediation of the tritium containers, while in the midst of the COVID-19 pandemic. This spurned an emergency conference call with US EPA Region 6, US EPA Headquarters, Department of Energy Personnel, Los Alamos National Laboratory field staff, Tribal environmental organizations, and 21 Tribal representatives from three states.

In the conference call, the surrounding Tribes expressed their concerns for this venting process due to the inadequate time of notification for Tribes to address the possible health concerns. These concerns include the chronic respiratory ailments that Native Americans in the region suffer from and the long term impacts to the local environment, including potential impacts to food production. The Tribes have requested that LANL seek alternative methods of ventilation that would capture more radionuclides. Moving forward, Tribes are seeking to

improve communications with LANL. To date, there is not a set time for the release of the tritium due to COVID-19.

3.4 Mobile Sources

Mobile Sources Priorities

- Uphold strong regulatory policies and emissions standards. The NTAA has submitted comment letters on regulatory proposals such as the Cleaner Trucks Initiative (CTI) and the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule, with the stance that the highest standards should be enacted and upheld.
- As per the letter[56] that the NTAA EC submitted to EPA on January 10, 2020, improvements could be made to the Tribal DERA program to better serve the needs of Tribes, in particular regarding reducing or waiving/eliminating the current match requirements.
- Provide support for EV infrastructure.
- Reducing diesel emissions from Commercial Fishing Vessels as a high priority in Region 10.
- Using the Volkswagen Settlement as a successful model, EPA and the federal government should support any future supplemental environmental programs that result from legal settlements. This type of supplemental program allows Tribes to self-determine their needs.
- Provide resources and education to mitigate road dust.

Mobile Sources Successes and Challenges

Evolution of the Mobile Sources Work Group

In 2016, the Volkswagen Settlement established a $14.7 billion fund, in which $2.8 billion was set aside for states and Tribes to fund diesel emission mitigation projects. Of the $2.8 billion, $55 million was earmarked for Tribes. With interest of many Tribes, the NTAA established the VW Settlement Work Group in 2017, as a resource for Tribes to learn about and access settlement money in mitigating NOx emissions from diesel vehicles.

Following ITEP's acceptance as the Technical Assistance Provider to the VW Settlement Trust, the Work Group realized the potential of expanding to broader issues of mobile sources. Initial discussions of an evolved work group came at the 2019 National Tribal Forum on Air Quality (NTFAQ). The discussions focused on the many issues and policies that Tribes deal with in Indian Country, relevant to mobile sources and air quality impacts. Following the NTFAQ, the NTAA EC approved renaming of the VW Settlement Work Group to the Mobile Sources Work Group, and the first call of the newly named Work Group commenced in June of 2019. This call included an introduction of all attendees and further discussed partnerships, relevant

guidance, and policy to consider as it impacts Indian Country. The VW Settlement was left as a standing agenda item on the monthly calls.

Throughout the year, leading up to the issuance of the 2020 STAR, various presentations and discussions occurred and included:

- CALSTART presentation, a deployment of advanced vehicle technologies to reduce greenhouse gas and criteria emissions
- Development of a General Plan for the Work Group
- EPA SmartWay presentation, and movement of goods across the country
- EPA and CARB presentations on the Safer Affordable Fuel Efficient (SAFE) Vehicles Rule
- EPA and the OTAQ Update on the Aircraft Lead Reports
- Columbia-Willamette Clean Cities Coalition and Green Transportation Expo presentation
- DERA Program – 4th Report to Congress Update
- Tribal presentations – National Association of Tribal Convenience Stores Convention
- Road dust discussion, specific to areas of the West and Alaska
- Added OTAQ updates as a standing agenda item
- Blue Lake Rancheria's EV Expo and Parade presentation
- Development of a DERA Program recommendations letter and how to improve it and allow more Tribes to access DERA funds
- Advanced Notice of Proposed Rulemaking for the Cleaner Trucks Initiative presentation, which later became a NTAA Policy Resource Kit and a comment letter sent to EPA on February 20, 2020
- Second presentation by EPA and the OTAQ on the Aircraft Lead Reports
- Ports Inventory Draft Guidance presentation
- Presentation by ITEP on accounting for on-road mobile sources in Emissions Inventories, and discussion of the MOVES model, which is an EPA resource of accounting for mobile source emissions

Lucas Bair is a member of the Spokane Tribe of Indians located in Eastern Washington Northwest from the City of Spokane. He graduated from Eastern Washington University with a BS in Geology. Lucas joined the Spokane Tribe's Air Quality Department in March 2013 as an Air Quality Technician working on reports, gathering data, and going to various trainings through ITEP. In 2017, he became the Air Quality Program Manager for the program. The Spokane Tribe Reservation is a Redesignated Class 1 Airshed which the program maintains and protects as a part of the program's main priorities.

The NTAA Mobile Sources Work Group looks forward to the increased interest and participation on future calls and how it can help NTAA respond to necessary guidance and policymaking initiatives by EPA. The Work Group meets on the first Thursday of every month. For more information and to join the calls, contact dara.marks-marino@nau.edu.

Tribal Diesel Emissions Reduction Act (DERA)

Although emission standards for new diesel vehicles are much more stringent than in past years, diesel engines can operate for 30 years or more, meaning that roughly 10 million older, dirtier engines are still in use, and will be for many years, even as cleaner technologies come online. As part of the Energy Policy Act of 2005, and subsequent Congressional re-authorizations, EPA has awarded DERA funds through competitive grants to fund projects that replace old diesel engines and vehicles with cleaner options. The initial requests for proposals weren't readily accessible to Tribes, however, because they were targeted toward large fleets and had minimum dollar thresholds that were much greater than Tribes needed or could use. In response to feedback from NTAA and interested Tribes, EPA began to set aside a portion of DERA funds for Tribal applications in FY2015.

In the years since DERA was implemented, 36 Tribes have received awards totaling $11.4 million. For a list of Tribally awardees and their projects go to https://www.epa.gov/dera/tribal-dera-awarded-grants. Although many Tribes have been successful with their DERA applications, the EPA would like to increase the number of Tribal applications that are submitted so that awards can reach as many areas of Indian Country as possible.

Additionally, many Tribes feel that these DERA awards are still inaccessible to them due to a number of factors. This belief is shared by both the NTAA's Mobile Sources Workgroup and the Executive Committee and on January 10, 2020, these two groups sent a joint letter to the EPA recommending ways in which Tribal DERA funds could be made more accessible to the Tribes it is aimed at assisting. The list of recommendations included:

- Eliminate or reduce the matching fund requirement
- Provide more informational, educational, and technical support for Tribes
- Expand the qualifying categories and/or allow for selection flexibility
- Remove the minimum operating hours constraint
- Allow for hardship waivers and provide capacity support
- Include options for electric vehicle (EV) infrastructure

While the EPA has not yet formally responded to these recommendations, the 2020 Tribal DERA RFA does include the following changes:

- The age limit for eligible model years has been removed

- Vehicle eligibility is now based on ownership, usage, and remaining life requirements (due to model years being removed)
- Tier 4 level replacements or rebuilds are expected to be used if possible. Tier 1, Tier 2, Tier 3, and Tier 4i options may only be used if Tier 4 is demonstrated to not be available or feasible. Stationary generators in the Alaska Rural areas are eligible for replacement with certified marine engines
- Highway usage requirements for eligible vehicles have been reduced from 7,000 to 5,000 miles during each 12-month period during the 24 months prior to upgrade
- The usage requirement to show eligibility for agricultural pumps has decreased from 500 to 250 hours (during each 12-month period during the 24 months prior to upgrade)
- The usage requirement to show eligibility for all other nonroad engines has decreased from 500 to 300 hours (during each 12-month period during the 24 months prior to upgrade)
- The usage requirement to show eligibility for locomotive and marine vehicles has decreased from 1,000 to 500 hours (during each 12-month period during the 24 months prior to upgrade)
- DERA funds can no longer be used for leasing, as defined in Section III.D of the RFA

Note: Tribes may use VW funds for a non-federal voluntary match on Tribal DERA projects. If your Tribe is interested in participating in the current Tribal DERA funding cycle, applications are due by July 9, 2020. There is $2 million in funding available. Applications must be submitted through grants.gov so please allow extra time for this. The RFA is available at https://www.epa.gov/dera/tribal.

Blue Lake Rancheria Clean Mobility Initiatives

Blue Lake Rancheria (BLR), a small, federally-recognized Tribe in Northern California, has been having an impact beyond its borders in the realm of cleaner mobility. In 2013, the Tribe formed the Department of Energy and Technologies and purchased its first electric vehicle. The following year, BLR installed public electric vehicle charging stations and began manufacturing biodiesel to fuel its public transit bus system, which serves the Mad River Valley between the cities of Blue Lake and Arcata. In 2015, BLR began work on an innovative solar-plus-battery microgrid to decarbonize its electricity use. This system, which was completed in 2017, has garnered far-reaching attention and provided a model for other microgrids throughout the region and world. These successes have come as a result of many fruitful partnerships the Tribe has developed with Humboldt State University (HSU) and Schatz Energy Research Center (SERC), as well as local utilities and state and federal agencies. Many of the Tribe's projects have involved design projects from students in Humboldt State University's (HSU) engineering program.

BLR's clean mobility projects have continued a partnership with GRID Alternatives to provide outreach for and facilitate the development of a One Stop Shop online tool to make it easier for lower-income consumers to access clean mobility initiatives from the State of California. As the online tool is rolled out for public use, BLR will provide direct outreach to those wishing to access financial assistance to choose cleaner mobility options. Financial incentives are available for fully electric vehicles, gas/electric hybrids and plug-ins, ride-sharing programs, and public transit. As a part of the program's rollout, in late 2019 BLR hosted its first Electric Vehicle Expo and Lighted Holiday Parade. Following an information-packed day co-sponsored by the Redwood Coast Energy Authority (RCEA), participants were invited to decorate their vehicles with lights and other holiday adornment and parade through the Rancheria and City of Blue Lake. The centerpiece of the parade was the Humboldt Transit Authority's new, full-size electric bus. This fun, family event was designed to help showcase electric vehicles as a part of the daily life of the community. Planning has already begun for the event in 2020, with more partners and a broader clean-mobility theme.

BLR continued its clean mobility work by becoming a beneficiary to the Volkswagen Environmental Mitigation Settlement and a representative on the Tribal Advisory Committee to the Trust. As a part of its court-ordered settlement for its diesel emissions cheating scandal, VW paid billions of dollars into a trust to fund projects reducing diesel emissions. A portion of those funds was set aside for Tribal use and is being distributed through at least four funding rounds. BLR has already replaced an aging wildland fire truck with a new, cleaner model, and also replaced one of its transit buses with a fully electric model.

During California's recent Public Safety Power Shutoff (PSPS) events, when the utility proactively shutoff power to large portions of the state to prevent potential wildfires, BLR's microgrid provided an island of power availability for the larger region. In addition to food, fuel, ice, and other needs, BLR was able to keep its EV charging stations up and running. There were even reports of community members charging their vehicles at BLR's stations and then using them to keep household appliances such as refrigerators and freezers running in homes.

This vehicle-to-grid use is a real-world demonstration of the versatility and resilience that electrified transportation will broadly provide.

In 2018, BLR launched its second solar-plus-battery microgrid, located on the Tribe's fueling station and convenience store. An additional 10 EV charging ports will be located at the station to help power the transition to cleaner mobility. Plans continue for the future, including partnering with the Humboldt County community on an electric transit plan, sponsoring a student project design solar parking lot canopy, and exploring options for transitioning off-road and stationary sources to electric. It is the Tribe's willingness to partner with a broad array of experts, stakeholders, funders, and outside agencies that has made all of this work possible, and it is BLR's sincerest hope that these projects will serve as examples for others to replicate and build on.

Gun Lake Tribe's Energy Efficient Vehicles Rebate Program

The Match-E-Be-Nash-She-Wish Band of Potawatomi Indians (Gun Lake Tribe) created the Conservation Incentive Program (CIP) to help reduce the environmental footprint of the Tribal Community through reductions of energy use and the conservation of water. Through this program, the Environmental Department offers incentives, mostly in the form of rebates, for investing in energy-saving and water-saving appliances, vehicles, and home energy efficiency measures.

The personal vehicle is the single greatest polluter. Energy efficient vehicles are not only fuel efficient but also have lower greenhouse gas emissions that can help the environment. In order to reduce Tribal Citizens' environmental footprints, the Environmental Department offers rebates for the purchase or lease of energy efficient vehicles through the CIP Automobile Incentive Program. Different rebate levels are issued based upon purchased or leased status and whether the vehicle has a fuel economy of 40 MPG highway or higher, 45 MPG highway or higher, or if the vehicle is a full electric vehicle. The Gun Lake Tribe provides higher incentives towards higher fuel efficient vehicles in order to reduce the impact on Mother Earth from inefficient vehicles.

Vehicles are powered by burning fuel in an engine. Pollution from cars is created as a by-product of this combustion process (exhaust) and from evaporation of the fuel itself. Therefore, better mileage not only saves you money but also means fewer emissions. Vehicles fueled by gas produce both greenhouse gas emissions and smog forming emissions. Once the greenhouse gases are released, they can stay in the atmosphere for 100 years or more. Smog forming emissions such as nitrogen oxide, non-methane organic gases, carbon monoxide, particulate matter, and formaldehyde are found close to the ground. They can often trigger lung diseases such as asthma, emphysema, and chronic bronchitis.

Electric vehicles do not run on gas and therefore do not produce these tailpipe emissions. They convert over 77% of the electrical energy they receive from the grid to power. Conventional gasoline vehicles only convert about 12-30% of the energy stored in gasoline to

power. However, to be truly environmentally friendly, electric vehicles need to be charged from renewable resources. Due to their higher efficiency and the low cost of electricity compared to gasoline engines, electric vehicles run on average at the equivalent of $0.60 per gallon.

In addition, energy efficient vehicles have reduced their smog-related pollutants and are 98-99% cleaner than they were in the late 1960s. By purchasing energy efficient vehicles, Tribal Citizens can help create a cleaner, healthier transportation future.

To learn more about the Gun Lake Tribes Conservation Incentive Program, please visit Gun Lake Tribe's Program Offerings webpage.

Volkswagen Settlement Updates

The Volkswagen (VW) settlement diesel emissions environmental mitigation program is now well into its third funding cycle! This year approximately $16.5 million is available to fund projects such as replacing or repowering old diesel vehicles or equipment with new, cleaner models, or installing electric vehicle charging stations. As the technical assistance provider for the program, ITEP has been working with Tribes around the country to complete the paperwork and meet the deadlines to become beneficiaries of the settlement so they can seek funding. Shortly before this went to press, the Trustee for the settlement announced that 24 Tribes have been designated as new beneficiaries for the third funding cycle, and they (along with previously designated beneficiaries who wish to participate again) can now start planning their projects for the year.

In the first two funding cycles, the program funded a total of 70 projects from 51 different Tribes, with nearly $19.8 million distributed to improve air quality on Tribal lands. The following accounts from representatives of three beneficiary Tribes illustrate the types of projects that can be funded by the program, and the impacts they can have on Tribal communities.

First, from Shain Heiss describing the Lower Brule Sioux Tribe's projects to replace two long-haul diesel trucks. The image below shows the two new trucks, with two happy drivers and Tribal Chairman Boyd Gourneau in the middle.

> *Founded in 1978 by the Lower Brule Sioux Tribe, Lower Brule Farm Corporation has grown to over 40,000 acres of farmland and grassland. The tribal farm regularly raises a variety of crops from corn, soybeans, navy beans, pinto beans, popcorn, and wheat, while the grasslands support a sizable cattle herd. Agriculture today is extremely mechanized and automated. State of the art equipment is required to remain viable and competitive, and the size of the operation can only remain successful with larger, newer, reliable equipment in order to meet deadlines to markets that are often very time sensitive. Non-functioning equipment delays production and delivery that can cost the farm and Tribe hundreds of thousands of dollars in repairs and profits. The Lower Brule, as*

good stewards to the air, land, and water that bless their region, must also consider how aging equipment affects the environment. The EPO office of the Lower Brule Tribe is dedicated to just such activities.

Trucking is important to the Lower Brule Sioux Tribe, particularly due to its geographic location in relationship to market locations. Whether hauling grain to a local elevator, delivering hundreds of truckloads of popcorn to processing facilities hundreds of miles away, or moving livestock across the country, it all must be moved by truck. Furthermore, owning trucks versus hiring trucking companies provides delivery services on-demand to meet schedules and important timely market needs.

The VW Settlement program came at a very important time for the Lower Brule Tribe. Agriculture prices have suffered in the past few years while land, equipment, and input prices have stayed the same or increased. Profitability has suffered, therefore capital expenditures have taken a back seat in efforts to maintain operating capital.

Thanks to the efforts of the US EPA, Wilmington Trust, ITEP, and others, the VW Settlement funds for Tribes have made it possible for Lower Brule Sioux Tribe to retire two heavy duty farm trucks in favor of two brand new shiny red Peterbilts. These new trucks promise better reliability and profitability while improving fuel economy and emissions, all at a time when equipment purchases would otherwise not be possible.

Admittedly, the process took some time. We have been aware of the Settlement since 2016 and started considering how it might impact us. When the process kicked off in the fall of 2017, we had very different expectations and there were many skeptics. We wrote our initial application in December 2017 for a much larger project, thinking we might only get one shot. Recognizing the potential outcome, ITEP worked with EPA and DOJ to modify the processes and allocation formulas, and change policies to help more Tribes. It worked and we re-wrote our initial

application three more times, scaling it to fit our allocation. Although funds were initially intended to be disbursed in early 2018, we received our first-round disbursement in May 2019. The second round kicked off shortly thereafter, and we received funding for round two in November of the same year! A lot of hard work, dedication, and ingenuity improved the process significantly, ultimately leading to the very streamlined and effective process in place today!

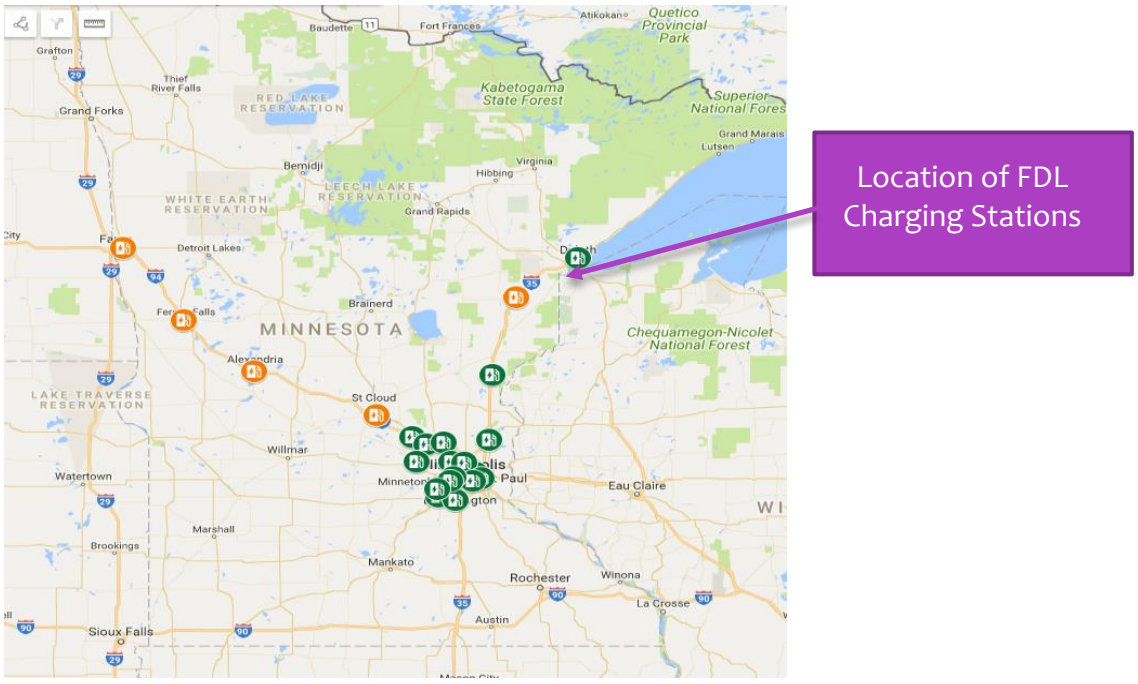
Keys to the success of the program:

1) *New allocation formula provides ALL Tribes an opportunity to participate.*
2) *New process for determining allocation provides interested Tribes with an estimated allocation figure to help determine if they have an eligible project PRIOR TO completing a full application.*
3) *ITEP's knowledgeable, engaged, technical and writing staff assisting in completion of applications.*

Next we hear from Joy Wiecks of the Fond du Lac Band of Lake Superior Chippewa, discussing the Tribe's projects to install electric vehicle charging stations at three Tribal facilities.

The Fond du Lac Band of Lake Superior Chippewa (FDL) is located in Northern Minnesota. We applied in both of the first two rounds of VW funding. While we requested funds to replace old diesel with newer diesel, we also applied for money to install three electric vehicle charging stations.

One of these stations will be installed in the Black Bear Casino Resort (BBCR). The BBCR is located between the cities of Duluth and Hinckley, MN, fills a gap in EV



NTAA NATIONAL TRIBAL AIR ASSOCIATION

coverage between these cities, and will fit nicely into the state's proposed EV network, as seen on the map above.

In addition to installing a station at BBCR, the Band is also adding stations to its Tribal Center and the Min-No-Aya-Win Clinic. We believe that these locations have the highest potential for hosting drivers of electric cars, partly because state and federal agencies may be purchasing more electric vehicles in the future and many of our visitors are from these types of agencies. All of our stations will charge the user for electricity. Installation of the stations is planned for the spring of 2020.

Finally, from Dave Messier of the Tanana Chiefs Conference, describing a project he assisted with for the Native Village of Stevens in Alaska. The project has not yet been completed, but the image below shows three generators replaced or upgraded in a similar project at another Village in 2016.

This spring the Native Village of Stevens will be replacing an aged fleet of Tier 0 or Tier 1 John Deere diesel generators in its electric utility plant. Currently and for the foreseeable future, the Tribe and community generate 100% of their electricity from these four generators.

This project will increase the plant to all either Tier 2 or Tier 3 engines and significantly reduce the emissions coming from the diesel fired power plant. Within 750 feet of the Stevens Village power plant is the community school, the community clinic, the Tribal office, and the community water plant. These facilities are able to take advantage of the waste heat coming from the engines by being in such close proximity to the plant, but this positioning also creates a situation whereby all residents of the community are regularly and negatively affected by the emissions from the power plant. Conversion of the diesel engines to the proposed configuration will be a significant improvement for residents in the community and to the local air shed, with emissions of oxides of nitrogen (NO_x) reduced by approximately 18-38% per generator, and fine particulate matter ($PM_{2.5}$) reduced by 30-33% per generator. The new engines chosen for the project are favorable for this application because they are best suitable for harvesting waste heat from the engine cooling systems and utilizing the energy to supply

space heat to nearby public buildings, which in turn offsets diesel consumption in those buildings' boilers.

ITEP looks forward to working with new and existing beneficiaries of the VW Settlement this year, as they plan and implement more projects like these to improve air quality on Tribal lands across the country. There will also be at least one more funding cycle in 2021, in which we anticipate a similar amount of money will be available as this year, so Tribes that have not managed to become beneficiaries yet will have another opportunity to make use of this funding source. For more information please visit our website (www.nau.edu/itep-vw), where you can also contact us for assistance with any aspect of the program.

VW Settlement TAC Member Highlights

As a requirement of the VW Settlement's Modified Indian Tribe Trust Agreement, ITEP was tasked with coordinating the establishment of a Tribal Advisory Council (TAC) to advise ITEP on its outreach and training efforts, and to provide a forum for Tribes to raise general questions relating to the Trust Agreement. ITEP solicited applications from Tribes that had participated in the first funding cycle, seeking individuals with a good working knowledge of the process and a desire to contribute to the effective and equitable distribution of the funds from the VW Settlement. In May of 2019, the first meeting of the TAC was convened with seven members from Tribes across the country. The group has been meeting monthly since that time, and providing excellent advice to ITEP and the Trustee from a Tribal perspective. Tribal Advisory Council members include:

- Joe Cebe, Air Quality Specialist (Forest County Potawatomi Tribe). Joe Cebe has worked for the Forest County Potawatomi as the Air Quality Specialist for the past 13 years. Prior to that he has 20 years of experience working at various establishments as an Environmental Chemist.
- Shain Heiss (Lower Brule Sioux Tribe). Shain Heiss has over 20 years of sales and management experience in multiple industries, including technology, logistics, food manufacturing and distribution, industrial electrical, trucking, alternative energy, and contract employment. Shain has been deeply involved in a Tribal value-added agriculture venture for the Lower Brule Sioux Tribe since 2004, and has developed a passion for the challenge of small business and bringing opportunities to under-served areas and populations.
- Stephen Kullmann, Community Development and Resilience Director (Blue Lake Rancheria). Stephen Kullmann has served on the TAC since May of 2019, but recently accepted another position with a non-Tribal organization, and will be resigning from the TAC at the end of May, 2020.
- Dave Messier, Rural Energy Coordinator (Tanana Chiefs Conference). Dave Messier has worked for Tanana Chiefs Conference since 2012 and with rural communities across Alaska's interior since 2009. Interior Alaskan communities are nearly 100% reliant on diesel generators for their power needs and past projects have ranged from power

plant maintenance and diesel emissions to large scale solar PV-battery systems designed to run communities "diesels off" during the long Alaskan summers.

- Amy Mignella, Attorney (White Mountain Apache Tribe). Amy Mignella has represented the White Mountain Apache Tribe in the VW Settlement since the process began several years ago. Ms. Mignella has been an attorney in Arizona for the entirety of her legal career, specializing in Indian law and specifically energy, water, environmental, communications, and planning work. She has been the Tribal representative to the Western Electricity Coordinating Council (WECC) Reliability Assessment Committee since 2017 and is currently the Chair of the Scenarios Working Group in that capacity. She also presently serves as a Trustee to the Rocky Mountain Mineral Law Foundation. She very much enjoys using her engineering and science background across her work.
- Carter Thomas, Air and Water Protection Specialist (Confederated Tribes of Coos, Lower Umpqua, Siuslaw Indians). Carter has worked for CTCLUSI since 2018, and manages the Tribe's ambient air monitoring program and indoor air monitoring program. He also supports the Tribe's water quality monitoring program and data collection and analysis team.
- David Wagner, Contracts & Grants Administrator (Mashantucket Pequot Tribal Nation)

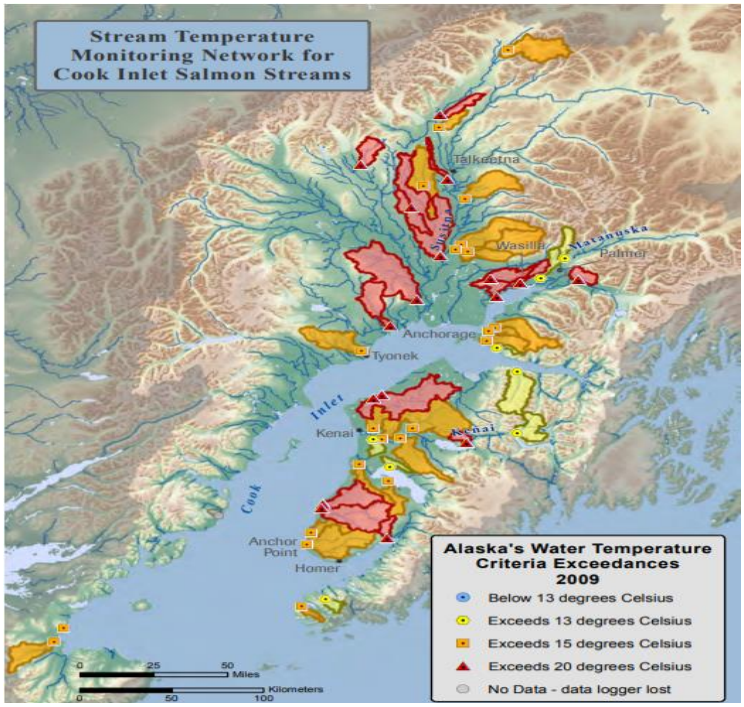
3.5 Climate Change

Climate Change Priorities

- Implement the recommendations[57] the NTAA EC provided to the Senate Committee on Indian Affairs and the Special Committee on the Climate Crisis, submitted September 13, 2020. Specifically, climate change is a critical issue for Tribes that must be addressed through both policy making and funding.
- Retain and strengthen national rules such as the endangerment finding that require regulation of greenhouse gases. The NTAA submitted comments on the Affordable Clean Energy proposed rule and the Council for Environmental Quality's update to the National Environmental Policy Act, emphasizing that taking climate change and greenhouse gas emissions into consideration as per the endangerment finding are of the utmost importance.
    - Regulating greenhouse gases will have far reaching impacts toward the goal of protecting human health. While all Tribes and ecosystems are experiencing the effects of climate change, Alaska Natives are particularly impacted by permafrost degradation due to increased temperatures, which leads to the erosion of coastlines, the collapse of infrastructure, the potential relocation of impacted communities, and other devastating impacts.

Climate Change Successes and Challenges

Klawock Cooperative Association's Impacts from Climate Change and Resiliency Efforts
Alaska is experiencing accelerating climate change impacts on many fronts. Efforts to improve air quality across the nation and the world are critical to reduce the impacts of climate change, as are efforts to adapt to the changing climate and ecosystems. The Klawock Cooperative Association (KCA), located in Southeast Alaska, has developed a Climate Change Adaptation Plan to identify Areas of Concern that are high priorities for creating greater resiliency.



Stream temperatures monitored in the Cook Inlet basin, Alaska. Nearly all exceeded maximum tolerance levels for salmon at least part of the summer. Source: Sea Grant Alaska 2016

Salmon is one of the species that is included in the Climate Change Adaptation Plan as a high priority Area of Concern because salmon are an iconic cultural resource for the KCA. Traditionally, salmon provided the foundation for almost all aspects of our cultural life and were an important trade good with interior Athabascan Tribes. Salmon continue to represent an important Tribal cultural connection to the waters of our ancestral homelands and also continue to provide a valuable economic and nutritional resource for our people.

It can be difficult to unravel the multiple stressors affecting riverine, coastal, and ocean survival rates, especially when focusing on salmonid species. Some environmental conditions are due to changing climate conditions while others are due to increases in population, land use changes, pollution, and other stressors. There are, however, some key climate related concerns. For example, important stream systems in Southeast Alaska are trending towards more transient (mixed rain/snow) and less winter snowpack dominated watersheds.

Increased winter rain and smaller snowpacks could lead to more intense winter flooding events and streambed scouring, along with altered timing of river flow, which are all salmon-sensitive aspects of the hydrological cycle. Additionally, salmon are particularly vulnerable to temperature while in freshwater, and increasing stream temperatures are having significant impacts.

These environmental changes do not happen in isolation. As summer flows decrease, there will be less water, warmer temperatures, and increased evapotranspiration. Lower flow rates will mean that the water stays in the streams and rivers longer and has higher water temperatures that will add stress to salmon returning to these rivers and streams. To address these threats, the KCA has identified the following resiliency strategies:

- Reduce other stressors to salmon habitats, including development, sedimentation and stream pollution, changes in streamside vegetation, and erosion due to land use practices such as road building and clear cutting.
- Replace or remove barriers to fish passage.
- Restore stream and streamside habitats (including planting native trees and removing invasive vegetation) and enhance instream survivability, likely in partnership.
- Ensure sustainable harvesting of salmon. This includes ensuring that a diversity of species are caught via monitoring programs (to the extent possible given current population levels) as opposed to unevenly catching one species.
- Manage hatchery programs to minimize harm done to wild stocks.

While the Tribe undertakes many natural resource programs that strive to protect salmon, it is highly likely that climate change will make existing management practices less effective. Climate change and air quality are deeply interconnected. The KCA values the efforts of Tribes across the country to protect air quality and reduce greenhouse gas emissions so that efforts to protect salmon – and other species and ecosystems – have a fighting chance to be effective.

La Jolla Band of Luiseño Indians: Reflections on Creating a Climate Adaptation Plan

Working collaboratively with the Climate Science Alliance, the La Jolla Band of Luiseño Indians Environmental Department created a living document to advance Tribal resilience now and in the future.

"Our climate adaptation plan is focused on our community, on our youth, and learning from our elders. The knowledge and memories, the different ways of knowing - these are the foundations of our resilience. If we don't hold on to our stories, are unfamiliar with our sense of place, and don't take care of our land, it is a loss to our youth, to our people, to our history. The ideas and strategies laid out in this plan will help us continue to be resilient in the face of change."

Excerpt from Letter from the Tribal Chairman, Fred Nelson Jr.

The La Jolla Band of Luiseño Indians, through the Environmental Protection Office, first started working on climate-related issues in 2012 and then in 2015 made this a top priority with funding received from the U.S. EPA GAP. Staff attended multiple trainings, including those lead by the Institute for Tribal Environmental Professionals, participated in various work groups and conferences, and developed a climate-related Vision, Mission, and Goals statement, a Risk and Vulnerability Assessment, and a Climate Change Mitigation Plan, all through a collaborative process. Following this stage, the La Jolla Band obtained funding from the BIA Tribal Resilience Program to host two Tribal Summits and develop a Climate Adaptation Plan.

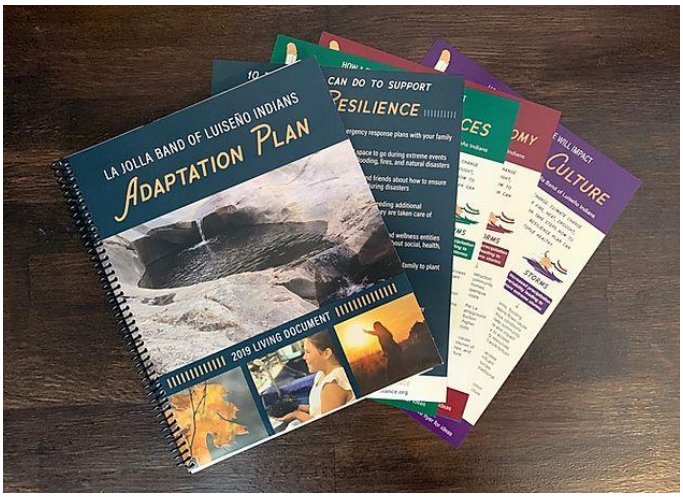
In 2015, the La Jolla Band became a partner with the Climate Science Alliance. This partnership became increasingly valuable over the years through collaboration on hosting the 2017 and 2019 Tribal Climate Change Summits and development of the La Jolla Climate Adaptation Plan.

The 2019 Climate Adaptation Plan is a 130+ page living document that articulates climate change impacts to the Reservation and its people and is broken up into categories:

- Natural and Cultural Resources
- Infrastructure and Economy
- Human Health and Wellness
- Community and Traditions
- Advancing Tribal Resilience
- Learning from our Elders
- Opportunities for Individual Actions
- Summary of Strategies and Opportunities

The plan itself is one part of a more holistic effort to support the Tribe as well as advancing intertribal collaboration across the region. The La Jolla Band plays a strong role in the Climate

Science Alliance Tribal workgroup and is contributing to efforts to support intertribal projects and opportunities to work collaboratively to advance activities that promote Tribal resilience on a regional scale. This workgroup has a standing agenda item for Tribal partners to share their work around climate adaptation and build a network for communication and practice as multiple Tribes advance Tribal resilience planning and activities. The workgroup meets regularly with western researchers and other partners to connect and explore opportunities for Tribal involvement and leadership. Recently, the workgroup connected with researchers from UC San Diego and the NSF Center for Aerosol Impacts on Chemistry of the Environment to explore possible collaborations around regional research related to atmospheric chemistry and air quality that could benefit Tribal communities.



The community is at the heart of La Jolla's resilience efforts, and the Environmental Department staff have several efforts focused on supporting the community. For the last 14 years, La Jolla has led the planning for an annual Intertribal Earth Day event that includes nine Tribal co-hosts, with multiple Tribal nations, dozens of non-Tribal partners, and hundreds of other participants to provide opportunities for outreach, education, and community networking. The last three years have focused on climate change related themes. In addition, the Tribe has hosted the 2017 and 2019 Southwestern Tribal Climate Summits, a biennial gathering to advance strategies and solutions that support Tribal resilience in the face of climate change.

All these efforts come together to advance Tribal resilience on multiple scales through partnership, collaboration, and commitment to each other and the planet. We are grateful to partners like the Climate Science Alliance who put their energy and heart into being true partners and collaborators. To learn more and download the plan and other resources, visit here.

Ute Mountain Ute Tribe Renewable Energy Efforts

The Ute Mountain Ute Tribe (UMUT) began developing fossil fuels on their lands in the 1950s and has relied on the industry for economical benefits, with its fluctuating twists of booms

Solar Power Ceremony and Dedication. Photo courtesy of Kaldurion Pinnecoose.

and busts, since then. In the last decade, the UMUT has expressed an interest in diversifying its energy profile. The Tribe is exploring a variety of options for renewable energy development to strengthen Tribal sovereignty, become more energy independent, and provide improved services and economic opportunities to Tribal members and reservation residents. The Tribe has formed an ad hoc Renewable Energy Committee with interested members (e.g., Environmental Department staff, Tribal Council members, Justice Department staff, Planning Department staff, etc,) to coordinate with potential developers and to pursue funding mechanisms to deploy renewable energy projects and energy efficiency measures. Feasibility studies have been funded by the U.S. Department of Energy (DOE), Department of Interior, and potential project partners. One of the past projects funded by DOE was an energy efficiency audit to assess measures that could be implemented to decrease the demand for electricity and propane at three large Tribal facilities in Towaoc.

Toward these goals, a 1 megawatt (MW) community solar project came online in March, 2020. This project is expected to offset an average of 1515 tons of greenhouse gases annually and the electricity costs of the residents of Towaoc and the Tribal government. The Tribal leadership showed their commitment to renewable energy by funding more than half of the $2.2m project, with DOE and another project partner funding the rest. As with the current 1 MW solar project, workforce training to empower Tribal members with the job skills to build and manage these systems will continue to be a component of projects in the future.

Solar panel construction. Photo courtesy of Marjorie Connolly.

The next phase of community renewable energy projects, still under application status as a DOE Renewable Energy Grant, is designed to offset the electrical needs of the Tribal government offices in White Mesa, UT. (See also profile of Bernadette Cuthair, below).

Because of her unyielding contribution in the Ute Mountain Ute's 1 MW Community Solar Panel Project, the Department of Energy (DOE) Office of Indian Energy selected Bernadette Cuthair as their 2019 Champion. Ms. Cuthair, the Director of Planning & Development, was acknowledged for her efforts with the solar project which decreased residential electric bills in the Tribal Community of Towaoc, CO, and offset the power demands of the Ute Mountain Casino and Travel Center. (See article titled: *Ute Mountain Ute Tribe Renewable Energy Efforts*).

"I am very honored to be selected as the DOE Indian Energy Champion on behalf of the Ute Mountain Ute Tribe and our renewable energy project," Ms. Cuthair stated. As Planning Department Director, one of her roles is to guide the Tribal Council on ventures that will benefit the Tribe. She has advocated for the renewable energy projects the Tribe has been studying over the past years, and she and other members of the Renewable Energy Committee have embarked on accomplishing them. More solar energy projects are planned for the Tribe and Ms. Cuthair will continue to play a leading role. To view the entire DOE Office of Indian Energy article, follow this link.

3.6 Emergency Management

Emergency Management Priorities

- Maintain and expand training and technical support to include air quality for participation in Emergency Management incident command teams, modeling, and planning efforts. These Emergency Management needs include:
    - Wildfire smoke events
    - Industrial accidents, oil spills, and toxic gas releases
    - Nuclear, biological, and chemical responses
- Strengthen the federal/Tribal/state relationship so that response teams have improved communication and greater agility.

Emergency Management Successes and Challenges

Smoke Ready Communities

A community becomes smoke ready by increasing their understanding of issues they face after looking at all their sources of smoke emissions during a year, such as prescribed fire, home wood heating, vegetation burning, and industry. Wildland fire smoke comprises the largest source of concern, but all will affect our communities. Strategies should be identified to help the community minimize their smoke exposure and provide information on its health effects.

Characteristics of Smoke Ready Communities

1. Understand their unique smoke issues.
2. Develop a strategy to minimize exposure based on their circumstances and needs.
3. Have resources available to help vulnerable and underserved residents. Our at-risk populations include children, elders, people with existing health problems, and the economically disadvantaged.
4. Consider all sources of smoke. Sources include industry, backyard vegetation debris fires, home wood heating, prescribed fires, and wildfires.
5. Determine their yearly smoke exposure – health impacts from smoke can be minimized by limiting our total exposure.
6. Understand how people cope with acute and chronic smoke exposure.
7. Know how smoke impacts a community's economics, growth, and mental health.
8. Prevent health problems with actions and information that focus on minimizing smoke exposure.
9. Develop and distribute education and outreach material that provides a coordinated effort to inform our communities.
10. Identify mitigation actions that provide guidance on preventing or limiting smoke exposure.
11. Coordinate with a variety of partners including the health care community, economic alliances, and emergency services, among others. Every aspect of our lives can be affected by smoke.

The Northwest Air Quality Communicators and the Air Quality Program of the Confederated Tribes of the Colville Reservation organized and will sponsor this coordinated Smoke Ready week set for June 15 to 19, 2020. These are suggested themes for the week:

Monday, June 15: Measuring Our Community's Air Quality
Tuesday, June 16: Wildland Fire Smoke
Wednesday, June 17: Explain Our Community's Health Risk
Thursday, June 18: How to Minimize Your Community's Smoke Exposure (can be focused on wildland fire smoke)
Friday, June 19: Decreasing our Smoke Exposure on a Yearly Timeframe

Saturday, June 20: Participate in a Community Event

Smoke Ready Resources

- ITEP / EPA sponsored class "Air Quality Planning for Wildfire Smoke" recorded webinars and class material
- EPA Smoke Ready Toolbox for Wildfires website
- Smoke Ready Tribal Communities, 2017 National Tribal forum on Air Quality training materials
- Tribal Healthy Homes Network: Indoor Air Quality and Public Health During Wildfire and Smoke Events

Wildfire Smoke Preparation: A Community-Based, Science-Driven, and Health-Focused Tribal Pilot Program

The summers of 2017 and 2018 were unlike any other for many Tribal air programs, especially for those in Alaska and in the western United States. Week after week, wildfire smoke impacted daily life. While pow-wows, fishing and shellfish harvesting, and family and cultural events continued, the media encouraged residents to limit their time outdoors. In social media and television news, people were warned of health risks from prolonged exposure to wildfire smoke. At the Tulalip Tribes, our Air and Indoor Environments Program developed its own localized, Tribal-specific response. Yet, we asked, "Are we equipped to address an air quality issue that had morphed into a major public health risk?" As a Tribe on the edge of an urban/rural interface, prolonged wildfire smoke was new to us. To protect elders, children, and those at risk, we knew we had to develop stronger communication channels coupled with local, real-time data.

We began with more questions than answers. What new channels could we use to communicate during an air quality crisis? If we advised people to stay indoors, how would we know if the buildings were well-filtered? What were the smoke infiltration rates in our different buildings and what variables influenced indoor/outdoor particulate matter ratios? In communicating risk and protective actions, who would the Tulalip community be most likely to trust? To seek answers, we hired Darrien Benally, a Tribal intern from the Navajo Nation, to conduct a community-wide survey and in-person interviews across multiple Tribal departments. Our objective was to understand the perceptions, beliefs and community response during smoke events. While collecting this data, we convened a team of community members, Tribal health clinic staff, the Tribe's Occupational Health and Safety lead, a researcher from the University of Washington, and Aileen Gagney, IAQ technical advisor for the Tulalip Tribes. The team then embarked on building a multi-pronged approach.

One of the first actions we took was to develop an air quality communications plan designed to be activated during wildfires or smoke events. The plan serves to inform residents, using localized data and multiple channels, of measures they can take to reduce exposure. To include the designation of a clean air shelter in the air quality response plan, we collaborated

with Orly Stampfer, a PhD student researcher at the University of Washington, to assess air quality and infiltration in three potential clean air shelters. We conducted preliminary sampling using borrowed, low-cost sensors and went on to purchase four of our own low-cost sensors (Purple Air) for more extensive assessment. These sensors were co-located with a regulatory particulate matter 2.5 ($PM_{2.5}$) instrument for 6 weeks, allowing us to calculate sensor-specific calibration equations.

Members of the Tulalip Air Quality Response Team celebrate installation of the flag program. Left to right: Dean Henry, Tulalip Occupational Health and Safety Program and Healthy Homes champion; Darrien Benally, 2018 ITEP Intern; Aileen Gagney, Program Consultant to Tulalip Healthy Homes; and Winslow Lewis, 2019 ITEP Intern.

Sensors were then co-located, indoors and outdoors, at three sites: our early learning center, our youth center, and another site in a different airshed. Data from these monitors suggest that the early learning center performs well in preventing infiltration of $PM_{2.5}$, but indoor sources of $PM_{2.5}$ exist, particularly in the youth center. Further monitoring will be conducted to determine which building's heating, ventilation, and air conditioning (HVAC) systems are best equipped to provide "clean air" shelters. We also added a blog on Tulalip smoke, a text-alert system, and a school-based flag program along with a short video introducing the flag program and the Air Quality Index. Through our collaborative approach and community-based research, we have developed a customized Tribal air quality and public health response plan to be deployed for future wildfire smoke events.

For more information, email us at: gmittelstaedt@thhnw.org or agagney@thhw.org. You can also visit our website: www.thhnw.org, for more tribal indoor air resources.

TAMS Center Air Quality Planning for Wildland Smoke

In 2019, ITEP and the TAMS Center offered several courses, including the Air Quality Planning for Wildland Smoke. This course is a hybrid course that contains online webinars and culminates with a two day in-person training. Participants must view 6 pre-course webinars and submit a completed listening guide for each webinar. The webinars are available as recordings and may be viewed at any time at http://bit.ly/AQforWildlandSmoke. The goal of the webinars is to get the participants up to a specific level of knowledge of wildfire smoke before they attend the final two-day in-person course.

The in-person course was held April 2-3, 2019, at the EPA Idaho Operations Office in Boise, ID, where offices of some of the course instructors are located. The team for instructors included

Kris Ray, Confederated Tribes of the Colville; Darwin Holyan, Washoe Tribe; Mike McGown, EPA-Idaho OO; James Payne, EPA-OAQPS; Jacob Wolf, Idaho DEQ; and Chris Lee, TAMS.

For the in-person course, participants worked on various projects to help them develop strategies to address wildfire smoke impacts to Tribal communities. Participants were able to set-up and use sensors and air monitors that monitor smoke in the ambient air. Information on publicly available websites and other online tools was shared. The participants built box fan filter systems to help with the indoor air quality. Lastly, outreach plans to share information with specific targeted audiences were developed and presented.

3.7 Funding

Funding Priorities

- See *Appendix A: NTAA Tribal Air Quality Budget Analysis* for an in-depth look at the budgetary needs of Tribal Air Programs.
    - The number of federally recognized Tribes continues to grow, the cost of living continues to increase, and Tribal air program capacity continues to expand, while Tribal air programs' budgets have remained stagnant at 2013 levels.
    - The three most significant funding needs most Tribal air quality programs have are 1) retention of qualified staff and paying a competitive wage, 2) replacing aging monitoring equipment, and 3) managing wildfire air quality impacts.
- Funds need to be contracted in advance where practicable. It is difficult to build capacity in programs and meet Tribal needs if Tribes are reliant on reimbursement rather than having available funds. Regions (such as Region 10) that implement multi-year contractual funds for Section 103 and 105 grants experience stable budgets that are not reliant on conventional fluctuations of current year's federal budget.
- EPA's Strategic Planning and Program Guidance documents should not be based on the President's Proposed Budget, but rather on the most probable funding scenarios and open reviews with co-regulators.
- The Indian General Assistance Program (GAP) is the primary source of environmental program funding for most Tribes and it is often used by Tribes to initiate or build air programs. GAP needs to have an increase in funding as well as a reduction in the administrative burdens for Tribes, without a concomitant reduction in Tribal STAG funds. Increasing Tribal air funding could also accomplish this need for increased funding, by way of increasing the Tribal portion of the STAG grant funding.

Funding Successes and Challenges

The Loss of the Tohono O'odham Nation's Air Quality Program

Many Tribes want to develop air quality programs within Tribal governments but lack the adequate support from EPA funding to accomplish this important goal.

The Tohono O'odham (TO) Nation has over 30,000 members and covers 2.8 million acres of southwestern Arizona, including 75 miles on the U.S.-Mexican border.

The TO Nation's air quality has been impacted by agricultural burns and unknown toxic burns coming from Mexico. They collaborated with the Commission for Environmental Cooperation as well as the Mexican government to help deal with this ongoing, multi-year issue.

The TO Nation has two copper mines and over 100 legacy mine sites on or near their lands. Copper mining on the TO Nation has Tribal members particularly concerned about dust and heavy metals that are blown into the air during the monsoon/rainy season, as well as basic dust control from the many dirt roads in the dry desert landscape.

According to interviews conducted by the Agency for Toxic Substances and Disease Registry,[58] some children and elders in the village have allergies and asthma, and one resident died of Valley Fever. Valley Fever is a lung infection caused by a fungus that lives in the top layer of desert soils.[59]

People are more likely to be exposed to Valley Fever in dusty environments. Mining operations that disturb topsoil and expose people to dust could increase the risk for Valley Fever.[59] While a preliminary analysis comparing mining and non-mining areas near metropolitan Phoenix found that living near a mine was not associated with higher rates of Valley Fever,[60] a consistent, ongoing air monitoring program would help the TO Nation better understand and mitigate this threat for community members.

The TO Nation has struggled to maintain and operate an air quality program due to a lack of EPA CAA Section 103 funding, yet still needs to address air quality threats from road dust and mines like the Cyprus Tohono Corporation copper mine, which is located less than a mile from the TO community of North Komelik. Plans to develop an air monitoring program have stalled due to insufficient Section 103 grants, which are used to fund air quality programs.

Ruben Cu:k Ba'ak

For the past four years, Ruben Cu:k Ba'ak, the Environmental Specialist for the TO Nation's Environmental Protection Office, has worked to respond to the air quality concerns of community members. Ruben was reassigned in early 2020 to work on recycling and composting projects as Section 103 funding provided by EPA was not sufficient to pay for Ruben's salary to continue his air quality program work. Without funding for monitoring and a dedicated staff member, the TO Nation will be hard pressed to protect their community members and work towards their basic right of having clean, healthy air to breathe.

Cherokee Nation – How to Best Use the Funds We Have and Determine Our Future Needs

Cherokee Nation set up their first air monitoring site in 1998, and we currently operate four fixed sites and one mobile monitor in northeastern Oklahoma. All sites have ozone monitors and MET equipment, and a few also operate continuous PM monitors and trace instruments. With all that equipment in the field, we inevitably must replace things from time to time. When faced with malfunctioning equipment, the questions we typically ask ourselves are, "Should we repair or replace the instrument?" and, "Do we have money in our budget for either?" We recently had issues with our CO analyzer and decided to go with the repair option; we sent the equipment back to the manufacturer. We were without the analyzer for three months, $2300 was spent, but after getting the instrument back we soon realized that the issues we were having were not resolved. We ended up purchasing a new analyzer about seven months later. The new analyzer was about $3000 more than the original; we would have been better off purchasing a new analyzer right off the bat, but we were trying to save funds. We were fortunate that we had enough money in the grant to make this unplanned purchase. It should also be noted that the analyzer we replaced had been in continual operation for twelve years.

When we began having problems with our NOx analyzer, we made the decision to ask for the funds to replace it during the next grant cycle. The instrument had been installed in 2003, and it was becoming difficult to find replacement parts. The new instrument was about $3000 more than the original. We were fortunate that the instrument remained operational until we could purchase the replacement this fiscal year.

It can be difficult to plan for these scenarios when you are trying to budget from year to year, but from our experience it is a good idea to work with manufacturers when you have older equipment to see if they are phasing out certain models and/or parts so you can potentially plan to add an equipment purchase to your future grant. We also work closely with our Project Officer to let her know when we might potentially need to purchase equipment. If a new purchase of any kind is not an option, you can work with the TAMS Center to see if they have equipment to loan or if they know of a Tribe with surplus equipment or parts.

Story of a Granted Hardship Waiver to Further Build Capacity Within a Tribal Air Program

The Quapaw Nation was approved for treatment-as-a-state (TAS) in 2017 pursuant to Section 518(e) of the Clean Air Act (Act) to: receive grants under Section 105 at a reduced match;

receive or submit notification concerning redesignation under Section 107(d); receive or submit notice of sources under Section 126; and receive or submit notice of permits under Section 505(a)(2) of the Act.

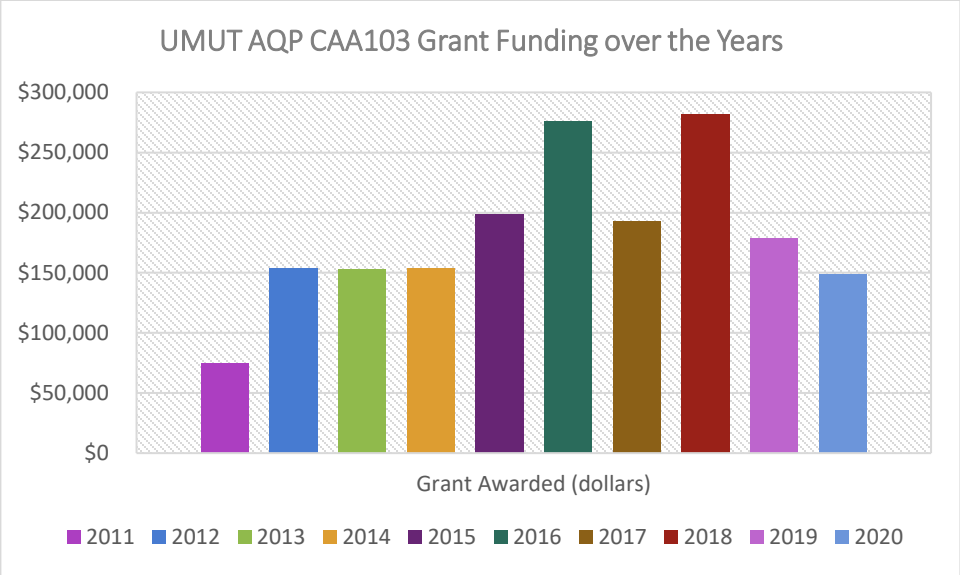
For fiscal year 2019, the Quapaw Nation requested funding under Section 105 with an additional request to be granted a Tribal hardship waiver to reduce the required match from 5% to 0% in accordance with appropriate federal statutes and regulations under 40 CFR 35.575. This section states that, "For a Tribe… the Regional Administrator may increase the maximum federal share if the Tribe… can demonstrate in writing to the satisfaction of the Regional Administrator that fiscal circumstances within the Tribe… are constrained to such an extent that fulfilling the match requirement would impose undue hardship."

The EPA Region 6 Administrator evaluated the Quapaw Nation's application, which included per capita income and unemployment rate, and determined that a financial hardship exists. Additionally, the Regional Administrator noted the Quapaw Nation's outstanding performance in previous Clean Air Act grants. The request to reduce the required match from 5% to 0% for fiscal year 2019 was subsequently granted. It was noted that EPA grants each waiver on a case-by-case basis and this approval does not set a precedent for future grant applications under any Clean Air Act program. The Quapaw Nation Environmental Office has successfully begun implementing their Section 105 program utilizing grant funds from EPA without a required match.

Please contact Craig Kreman (ckreman@quapawnation.com) with any questions concerning the details of the granted hardship waiver.

UMUT AQ Program Capacity Development and Viability with a Decreasing Budget

The Ute Mountain Ute Tribe's (UMUT) CAA (Clean Air Act) 103 Grant Award for Fiscal Year 2020-21 two-year funding cycle is the lowest since the initial year of funding in 2012. The Air Quality Program must decide how to appropriate the funding as the old and borrowed equipment deteriorates, which could mean cutting staff training, reducing capability, or more drastic measures in order to meet the unpredicted expenditures of the aging instruments.



The UMUT AQP has a responsibility to protect Tribal Members who reside on and utilize the reservation lands located in the Four Corners Region of Colorado, New Mexico, and Utah. The CAA 103 funding originally was to evaluate potential pollution in the White Mesa Community in Utah, whose lands are adjacent to a uranium mill. At the onset, the program set up a total suspended particulate (TSP) monitor at the community water pump house site. In 2015, the Tribe expanded the program with two air quality shelters which were located in the two Tribal communities: one stayed in White Mesa, and the other in Towaoc, CO. The program purchased another TSP monitor for both shelters and installed particulate matter (PM) instruments at the Towaoc location: Federal Equivalent Method (FEM) PM2.5 TEOM, and FEM PM10 TEOM, on-loan from TAMS. The personnel also grew in 2011 from one part-time staff to an additional fulltime specialist. In 2016, the restructure of the Environmental Program resulted in two full-time employees: an AQ Program Manager and an AQ Technician.

UMUT Air Quality Station, Towaoc, CO, looking south. Photo by Janice Archuleta

When the Southern Ute Indian Tribe AQ Program upgraded in 2017, they presented the UMUT AQP with an ozone monitoring system: an ozone analyzer, a zero-air calibrator, and a vacuum pump along with complementary installation. They also gave the Tribe two Federal Reference Method (FRM) 2.5 PM monitors (Partisols). The UMUT AQP had plans to use the Partisols for a regulatory PM2.5 program, however upon considerations of costs and workload, we determined to operate a non-regulatory PM program using only the continuous monitoring instruments. Since then, the continuous monitors have been failing and we are grateful to the TAMS Center for working with us on the more comprehensive repairs.

We also obtained a field ozone system that will be deployed in the Tribe's oil/gas production areas after field testing at the Towaoc site. This system was piggy-backed onto the ozone program, which became a regulatory program in 2019.

The Tribe has been expanding capacity since the inception of the Air Quality grants in 2012. With a UMUT Tribal Resolution in January 2020, we are also actively pursuing Treatment As a State (TAS) status under the CAA. Alarmingly, the funding has dropped for the FY2020-2021 period and the award will cover little more than salaries, minimal maintenance and calibrations for instrumentation, and building electricity and utilities. Fortunately, EPA Region 8 allowed carry-over funding from previous years' budgets to be added to the current funding cycle. This offset the ozone program expenditures this year. Otherwise, the UMUT AQ Program would be reduced to fully non-regulatory, with aging instruments which may not make it another year.

Southwest Tribes Create Funding Solutions

With federal funding for Tribal air programs consistently stagnant, many Tribes are partnering with states to improve air quality and protect public health. The state of California recently passed Assembly Bill 617 that allocated California Air Resources Board (CARB) funds to be distributed as Community Air Grants to local governments including Tribes. Several California-based Tribes have taken advantage of the Community Air Grants including the Morongo Band of Mission Indians, Blue Lake Rancheria, Santa Ynez Band of Chumash Indians, and the Twenty-Nine Palms Band of Mission Indians.

Shawn Muir is the Tribal Programs Director for the Twenty-Nine Palms Band of Mission Indians and recently reported on her Tribe's project to utilize a Community Air Grant to develop an air monitoring program. She recently submitted this report to NTAA that was included in a report to the California Assembly:

The Twenty-Nine Palms Band of Mission Indians is a federally recognized tribe of Chemehuevi descendants located in southern California. The Tribe's Reservation is located near the City of Coachella, about 17 miles northwest of the Salton Sea. The Quantification Settlement Agreement, initiated in 2003, has reduced water levels in the Salton Sea by transferring water away from agricultural producers in the Imperial Valley, and diverting it to San Diego County for municipal use. The agricultural runoff had sustained the Sea's water level, but the reduced inflows have begun to expose the dry lakebed, or playa. The eastern Coachella Valley communities, including the Tribe, are concerned that the exposed playa will increase air pollution

A typical windy day at the Salton Sea. Photo by Shawn Muir

from windblown dust. The Twenty-Nine Palms Band of Mission Indians have initiated an air monitoring project which utilizes funding from the California Air Resources Board Assembly Bill 617 Community Air Grant. This funding has allowed the Tribe to build an air quality monitoring station which measures small suspended particles, or particulate matter (PM). Tribal Chairman, Darrell Mike, was interviewed shortly after a ribbon-cutting ceremony was held to officially kick off the project, "The Tribe has had a long-term goal of developing an air monitoring program, and this funding has helped build that capacity. We are excited to have our air station up and running and to share information that can be used to improve the health of the community."

The Tribal air monitoring project, initiated in 2018, aims to measure PM pollutants continuously, and share the data via the Tribal Government website (29palmstribe.org). With real-time air quality data available to Tribal members and the community at large, the Tribe hopes to raise awareness about the potential issues caused by the Salton Sea and other sources of emissions in the area. A Tribal Air Technician, Jose Aaron Rojas, was hired to manage the air monitoring station and interpret data. "The information we are collecting at this station can be analyzed show changes in particulate levels over time to, not only determine whether the Salton Sea is affecting regional air quality, but to show whether the air quality is at a safe level". Mr. Rojas adds, "We will be reaching out to share that information on our website and at community outreach events."

The air quality monitoring station operated by the 29 Palms Band of Mission Indians. Photo by Shawn Muir.

3.8 Consultation, Sovereignty, Collaboration, & Partnerships

Consultation, Sovereignty, Collaboration, & Partnerships Priorities

- Upholding the 1984 Indian Policy is of utmost importance. As such, EPA must increase the level of training provided to staff in working with Tribes, and Tribal professionals should be the leaders in conducting these trainings. These trainings are known internally as, "Working Effectively with Tribal Governments."
- Continue to improve Tribal consultations, with a preference for face-to-face consultation. Tribal consultation notification that relies solely on the Tribal consultation website is insufficient and does not fulfill the intent of the consultation mandate.
- EPA should continue to fund trainings and expand opportunities for training for Tribes on how to obtain Treatment as a State status, as well as expansion of CAA authorities.
- Tribes should be included in national air monitoring projects and EPA may include Tribal air quality data in the national data sets when requested by a Tribe.
- When EPA delegates authority to states, states must provide adequate consultation with Tribes and understand the government-to-government relationship that is required by the delegation of authority.
- Provide increased support to Tribes in locations that are impacted by transboundary impacts to air quality. Air knows no boundaries. Tribes are predominately impacted by pollution beyond their borders, often by neighboring governments, and the ability to review and comment on permits, rules, and regulations is crucial.

Consultation, Sovereignty, Collaboration, & Partnerships Successes and Challenges

Collaboration Between States and Tribes: an Example from Minnesota

Recent collaboration efforts among NTAA staff, Tribes, and the Minnesota Pollution Control Agency (MPCA) have proven helpful in making the most of the shared interests of states and Tribes in air quality issues. Over the past year, NTAA staff and EC members, interested Tribes, and the MPCA have held a number of conference calls to discuss EPA proposals on the Affordable Clean Energy plan, the Safer Affordable Fuel Efficient Vehicles rule, and the Taconite Risk and Technology Review. These calls have allowed Tribes and the NTAA to hear a state regulator's view on these proposals and to share Tribal views with the MPCA. Often these views are similar or complementary, yet we learn from each other especially as some of these proposals are quite long, we all have limited time for review, and bring various areas of expertise to the table.

These calls and sharing of comments have taken place on the staff level with people who have already had positive experiences working together, and help to build trust and relationships that can serve us all well in the future.

During our calls we found that sometimes air quality representatives are limited in their ability to offer comments due to various policies, rules, or regulations of the agency they work for. However, if another agency becomes aware of these issues they may be able to provide the comments under their own authority. With regard to information sharing, the MPCA was able to provide information to Minnesota Tribes on the number of electrical generating units near Tribal lands and the number of coal-fired units in the state that have or will shut down. We have been able to find common ground and share information with each other that strengthens our comment letters. We are so much stronger when we speak with one voice!

Elevating Radon Issues

In September 2019, Billie Toledo, the Environmental Technician for the Prairie Band Potawatomi Nation and the NTAA EC Region 7 Primary Representative, presented at the Conference of Radiation Control Program Directors' (CRCPD) radon symposium on "Partnering with Tribes on Radon Projects". During her presentation, Billie focused on the Prairie Band Potawatomi's radon story, including challenges, priorities, and partnerships (and at times, the lack thereof).

The presentation took an unconventional turn after Billie continued off an earlier topic brought up by the Center of Disease and Control (CDC) regarding the lack of data in the state of Kansas. Billie informed the audience there was data due to the Prairie Band's 20 years of data collection. The discussion about the lack of data from the state of Kansas did not sit well with the Kansas Department of Health and Environment (KDHE) Radiation Control Program staff who was, unbeknown, sitting in the room. The presentation eventually led to valuable networking and connection between Billie and KDHE's Radiation Control Program. A partnership between Prairie Band and KDHE had been attempted several years prior, but never had any leads or activity until now.

On December 6th, Billie was invited by KDHE to participate in a historic proclamation signing from Governor Laura Kelly declaring January "Kansas Radon Action Month". Prairie Band Potawatomi Nation was the only Tribal participant among state, local, and other organizations.

Prairie Band Potawatomi and KDHE are continuing to develop their relationship and their shared desire to increase outreach and awareness on the dangers of radon. Prairie Band Potawatomi's future tasks include holding a Healthy Homes Workshop for the community in which KDHE has agreed to participate in.

Thank you to the individuals and organizations that assisted in these opportunities. The CRCPD invitation for the Prairie Band Potawatomi to present at the 2019 CRCPD symposium allowed for Tribal voices to be heard, increased awareness of radon work in Indian Country, and brought together two entities that were once strangers. The unity will help close the gap of separation between states and Tribes and help continue building the bridge of partnerships in Indian Country.

Introducing Region 3

EPA Region 3 consists of Delaware, Washington D.C., Pennsylvania, Maryland, West Virginia, and Virginia, but did not have any federally recognized Tribes until 2017. That changed when the Pamunkey Indian Tribe, located in Virginia, became federally recognized. In 2018, six more Tribes followed suit and now the Region has seven federally recognized Tribes, all located in Virginia. The Tribes are beginning to increase their environmental capacity and the Pamunkey Indian Tribe and the Chickahominy Indian Tribe received General Assistance Program (GAP) grants. The grants have enabled the Tribes to hire environmental staff and send staff to the Institute for Tribal Environmental Professionals' (ITEP) Tribal Air Quality 101 training in January, 2020, in Flagstaff, Arizona. Both Tribes are interested in learning more about air quality and what they can do to educate and protect their citizens. Additionally, the Chickahominy Indian Tribe recently became the first Region 3 Tribe to become a member of the NTAA!

The other five Tribes are interested in attaining GAP grants for the 2021 fiscal year and with that will begin deploying resources to advance their Tribal priorities and goals. EPA Region 3 will continue to promote NTAA and support the Tribes to participate in the resources the NTAA provides.

Tribal Representation on the Clean Air Act Advisory Committee

The NTAA provides a voice for Tribes concerning Air Quality Issues. Tribes also have other opportunities to provide additional input to EPA on air pollution control. The Tribal Air Monitor Support Center Steering Committee and the National Tribal Council are two additional examples of such input. One lesser known opportunity lies with Tribal participation in the Clean Air Act Advisory Committee (CAAAC). CAAAC is a senior-level policy committee established in 1990 to advise the U.S. EPA on issues related to implementing the Clean Air Act Amendments of 1990. Tribes have had multiple representatives on the CAAAC for decades, selected by the Administrator of the U.S. EPA. Also represented on the committee are state and local governments, various industries, environmental organizations, and community groups.

The committee meets one or two times a year, normally in Washington, D.C. The Assistant Administrator for the Office of Air and Radiation determines the committee agenda, and the CAAAC provides advice to the Agency on critical air quality policy issues during face-to-face meetings and through specific workgroup reports. Past reports from the CAAAC include

recommendations on Title V, Diesel Emissions Reductions Act, Voluntary Air Quality Programs, and Ports Initiative. The Clean Air Excellence Awards Program was also established at the recommendation of the CAAAC. The awards recognize and honor outstanding innovative efforts to help make progress in achieving cleaner air. Award-winning entries must directly or indirectly reduce pollutant emissions, demonstrate innovation, offer sustainable outcomes, and provide a model for others to follow.

During the last membership process, the NTAA wrote a letter of concern to the EPA to ensure that Tribes continued to be represented on the CAAAC for the next two years. The resulting membership included the following five excellent Tribal representatives:

- Mr. Kris Ray, Air Quality Program Manager, Confederated Tribes of the Colville Reservation
- Ms. Natalene Cummings, Air Program Manager, Forest County Potawatomi Community, Natural Resources Department
- Mr. Jeremy Fincher, Environmental Director, Office of Environmental Services, Sac and Fox Nation
- Ms. Elizabeth Jacobs, Operations Planner, Akwesasne Housing Authority
- Ms. Gillian Mittelstaedt, Director, Tribal Healthy Homes Network

Prior to their first meeting with CAAAC, experienced CAAAC Tribal members met with the new members to provide insight on how to work in the committee as they represent their and other Tribes' concerns on air quality to EPA and the other members of the CAAAC.

3.9 Tributes to Retiring EPA Staff Members

As noted in the *Welcome from the NTAA Chairman,* both EPA and Tribal air programs are losing staff to retirement or assignment changes. The NTAA would like to specifically honor the following three EPA staff members, as they move on to new adventures.

Farshid Farsi
Among the many accomplishments of the TAMS Center stands the service provided by Farshid Farsi. From his time working with the Shoshone-Bannock Tribes in 1992 to his current work as the EPA TAMS Co-director, Farshid has brought a wealth of experience and knowledge to help the Tribes. Farshid will be retiring in December 2020 after 16 years of service with the TAMS Center. Farshid began working with the TAMS Center in March 2004 as the Co-director on the ITEP side of the TAMS Center collaboration. In August 2007, he transitioned to the EPA TAMS Co-director position.

Farshid began his career in Tribal air quality programs by working for the Shoshone-Bannock Tribes in Fort Hall, ID, in February 1992. Farshid was part of a Tribal program that addressed significant air pollution from a facility located on Tribal lands. Through extensive work under the leadership of Farshid, the Tribal program developed an air monitoring program that provided the necessary data to show the elevated levels of particulate pollution in the area. The Tribe was able to get the sources of pollution in the area under control and begin addressing the high levels of PM10. What is more significant about this effort is that this occurred prior to the promulgation of the Tribal Authority Rule.

Chris Lee, Melinda Ronca-Battista, Farshid Farsi, and Darlene Santos

As a Co-director of the TAMS Center, Farshid used his extensive experience to help the TAMS staff and steering committee (SC) address many issues. Farshid drafted many position papers on various TAMS services for the TAMS SC to consider. Farshid provided a knowledgeable voice for the Tribes in communicating with the various EPA and other agency offices, as well as provided helpful guidance for Tribal program staff when seeking options in addressing air quality concerns. Farshid's support and friendship will certainly be missed, but all his work and efforts have been much appreciated. Good luck and best wishes in retirement, Farshid!

Laura McKelvey

Laura has been one of the Tribal Air program's greatest proponents since the program started. Laura has worked for the US EPA's Office of Air Quality Planning and Standards (OAQPS) since 1989. During her earlier years at OAQPS she worked on acid rain issues, SO_2, and lead NAAQS implementation, and was the team lead on the development of the Integrated Urban Air Toxics Strategy. Laura took this knowledge when she became the office's Tribal program coordinator, and shared it with Tribal Nations across the United States as the leader of the Community and Tribal Programs Group. Always the forward thinker, Laura is currently in the Office and Information Division front office working as a policy advisor and helping others to learn the skills needed to best serve the Tribal Air Program.

From Brandy Toft, Environmental Deputy Director, Leech Lake Band of Ojibwe

Strong. Fearless. Advocate. Marker throwing moderator. These are a few of the terms that come to mind when thinking of Laura. For a self-proclaimed introvert, Laura goes out of her

way to make sure everyone is accounted for and included. She has been a tireless advocate for Tribal issues and Tribal rights from the first day I met her.

I was in my first year working in Tribal Air, attending a contentious regional planning organization meeting where the states were not pleased that the Tribes were going to have a seat and a vote at the table. I'm already frazzled as I'm new, inexperienced, in a new city, and running horribly late due to a flight delay. I walk into the room and Laura is standing at the front of the room taking charge, keeping a modicum of peace, and throwing markers – yes, throwing those smelly good markers she was writing with – at participants who were causing discord. I remember thinking how I already admired and liked this woman and I hadn't even met her yet. She then went on to make sure I was engaged and gave me the rest of her sandwich that she didn't eat from lunch hours ago. (That night I had some of the worst food poisoning in my life! – Thanks Laura.) What she accomplished in that room was amazing and skilled. She took a hostile room and found a path forward to what ended up years later to be a very fruitful and collaborative partnership. This is her skill: finding a path forward and engagement of those who need to be involved, breaking down the information to be digestible and relatable. Laura has done this time and time again – educating those who needed a nudge on Tribal rights, sovereignty, and overall understanding. To many Tribal air professionals she has been the face of EPA, a face we have come to rely on and learn so much from in return. I have always appreciated Laura's straight information and insight to understanding not only Tribal rights but the perspective of those on the other side. She is also uncanny in interpreting for EPA what the Tribes are saying and relaying it to them in classic governmenteze. This ability to cut through rhetoric, interpret both sides, and create calm in the room has led to many successes for Indian Country. She leads by example for those on both sides and the staff she leaves to carry on.

Thank you, Laura. Not only have you been an advocate, an educator, and a moderator, you have also become a dear friend to so many of us. Thank you from the bottom of our hearts. You will be so much missed but we know you have laid the ground work for your advocacy to continue. Just remember, next time you hear Laura present – don't forget to count how many times she says, "Y'all," and, "All Y'all." Chi Migwetch!

Monika Lacka

The National Tribal Air Association would like to recognize Monika Lacka for her 10 years of dedicated EPA service to advancing Tribal air quality programs. Monika began her career in September 2008 as a Life Scientist in the Air and Radiation Division at EPA's Region 5 office in Chicago. In September 2009, she became Region 5's Lead Tribal Air Coordinator (TAC) for the Wisconsin Tribes, where she provided guidance to help build Tribal air grant and programmatic capacity, aiding the development of air quality management projects, and programs in Indian Country. Monika also provided her expertise to the Institute for Tribal Environmental Professionals by serving as an EPA presenter for numerous workshops in the

Tribal environmental professional development series within the American Indian Air Quality Training Program (AIAQTP). Monika's work with the AIAQTP also extended into her role as an ex officio member on the Tribal Air Monitoring Support Center's Steering Committee and providing a conduit for information sharing with EPA's TAC Community. In 2016, Monika assumed a role as Region 5's lead TAC to help fulfill its duties as EPA Headquarters' sub-lead region for Tribal Air for an unprecedented second consecutive 2-year term. Her contributions as the sub-lead regional coordinator included helping plan the agenda for the annual National Tribal Forum on Air Quality and the TAC Face-to-Face Meeting with EPA's Headquarters' Program Offices while improving communication and dissemination of information to the regional TACs. We thank Monika for her exceptional EPA service and Tribal air program advocacy and wish her the best of luck as she embarks on her new career path!

3.10 Tribal Air Monitoring Support Center

The Tribal Air Monitoring Support (TAMS) Center was formed in 2000 through a cooperative agreement between the U.S. EPA and the Northern Arizona University (NAU) Institute for Tribal Environmental Professionals (ITEP). The mission of the TAMS Center is to develop Tribal capacity to assess, understand, and prevent environmental impacts that adversely affect health, culture, and natural resources. The TAMS Center is the first technical training center designed specifically to meet the needs of Tribes involved in air quality management and offers an array of training and support services to Tribal air professionals.

Camille QuickBear has been the Clean Air Act 103 Coordinator for the Sisseton Wahpeton Oyate Office of Environmental Protection for the last 5 years. Currently she is working with the local Sisseton Wahpeton Housing Authority on indoor air issues on the Lake Traverse Reservation. She has a BS in Conservation Biology from Oglala Lakota College. Camille is currently serving as the chair of the TAMS Steering Committee.

TAMS Steering Committee

The TAMS Center Steering Committee is the Tribal advisory group that provides guidance on the services offered by the TAMS Center. The Steering Committee consists of Tribal program voting members and ex-officio members representing EPA offices, the Northern Arizona University Institute for Tribal Environmental Professionals and other Tribal support organizations. As of May 2020, the voting members of the TAMS Steering Committee are:

Tennille Denetdeel is a Senior Environmental Specialist with the Navajo Nation EPA. She has previously worked with the Air Quality Control Program for 8 years and is now working with the Navajo Superfund Program. She has assisted with the implementation of a Title V Operating Permit Program and a Section 105 CAA Monitoring Program for the Navajo Nation. Her experience includes CAA permitting mechanisms such as NSPS, NSR, NESHAP, PSD, and emission control technologies such as CEMS, COMS, and SCR. In addition, she has assisted with the management and implementation of an ambient air monitoring network, developing an IAQ program for the Navajo Nation, as well as implementing community based research with a focus on improving health and reducing exposure to air pollution. She has special knowledge as it relates to the implementation of CAA programs in Indian Country. She earned her B.S. in Environmental Science from Haskell Indian Nations University and is currently pursuing her Masters of Science in Environmental Resource Management from Arizona State University.

- Camille QuickBear – TAMS SC Chair (17-20) – Sisseton-Wahpeton Oyate'
- Vallen Cook (18-21) – Grand Portage Band of Chippewa
- Tennille Denetdeel (19-21) – Navajo Nation
- Lori Howell (17-20) – Shoshone-Bannock Tribe
- Carma Huseby (18-21) – Leech Lake Band of Ojibwe
- Mike Natchees (18-21) – Ute Tribe of the Uintah and Ouray
- Darold Wallick (17-20) – Pala Band of Mission Indians

3 seats will be renewing beginning Oct 2020:
Camille QuickBear (20-22)
Lori Howell (20-23)
(One TAMS SC Voting Member Seat is vacant)

Virgil Masayesva Tribal Air Programs Excellence Award

In 2007, the Tribal Air Monitoring Support (TAMS) Center Steering Committee chose to develop an award that formally recognizes the tremendous work put forth by Tribal program staff on their air quality projects and programs. The award was named the Virgil Masayesva Tribal Air Programs Excellence Award after the co-founder and former director of the Institute for Tribal Environmental Professionals (ITEP).

Virgil Masayesva was a member of Hopi tribe and a decorated Vietnam Veteran. In his role as special assistant to NAU president Eugene Hughes, he co-founded ITEP in 1992 with a vision of strengthening Tribal sovereignty by helping Tribes build environmental management capacity and capability. Virgil was instrumental in developing and building the ITEP training programs including the TAMS Center and numerous other projects dedicated to the protection of Tribal environmental resources and cultures. Through his innovation, hard work, and commitment, Virgil positively affected the direction of environmental management in the Indian Country forever.

Every year since 2007, the TAMS Steering Committee has selected hardworking individual Tribal environmental professionals, Tribal air quality programs, or Tribal consortia from a pool of nominations to receive this prestigious award. The selectees are nominated by their peers and colleagues in any one of three categories: Technical Excellence, Policy Development, and/or Tribal Program Development. The award recipient is recognized and presented a commemorative plaque at the Virgil Masayesva Award Ceremony held at the annual National Tribal Forum on Air Quality.

The TAMS SC Spring Meeting occurred at the TAMS Center in Las Vegas, Nevada, from March 3-5, 2020. The TAMS SC selected Bill Thompson from Penobscot Indian Nation to receive the 2020 Virgil Masayesva Award in the category of

Policy Development. Mr. Thompson has been employed with the Penobscot Tribal Air Quality Program since 2005. He has served in leadership positions on many national organizations including the NTAA Executive Committee, the TAMS Steering Committee, and the Tribal Science Council. Congratulations to Bill Thompson!

Here is the list of award recipients from 2007 through 2020:

Roxanne Ellingson, Walker River Paiute Tribe	2007
Southern Ute Air Quality Program	2007
Nez Perce Tribal Air Quality Program	2008
Dewayne Beavers, Cherokee Nation	2008
Forrest County Potawatomi Air Quality Program/Jeff Crawford, FCPC Attorney General	2009
Dr. Toni Richards, Bishop Paiute Tribe	2010
Navajo Nation Radon Program	2011
Joy Wiecks, Fund Du Lac Band of Lake Superior Chippewa	2011
Brandy Toft, Leech Lake Band of Ojibwe	2012
Syndi Smallwood, Pechanga Band of Luiseno Indians	2013
Delbert Althaha, White Mountain Apache	2014
Randy Ashley, Confederated Salish and Kootenai Tribe	2015
Dan Blair, Gila River Indian Community	2015
Angela Benedict, Saint Regis Mohawk	2016
Rosalie Kalistook, Orutsararmiut Native Council	2016
Jason Walker, Northwest Band of Shoshone	2017
Northern Cheyenne Tribe Air Quality Program	2017
Morongo Air Quality Program	2018
Gillian Gawne-Mittelstaedt, Tribal Healthy Homes Network	2019
Bill Thompson, Penobscot Indian Nation	2020

Section 4. Conclusion

Throughout Indian Country, Tribal Air Quality professionals work every day to protect human health and improve ambient and indoor air quality, and the NTAA hopes that the 2020 STAR tells the story of the successes and challenges they experience on a daily basis. Tribes have faced many challenges throughout their unique histories, and through their strong traditions Tribes will continue to serve as strong stewards of the land, air, and water. Tribes understand the interconnectedness of life, and seek successful partnerships with the federal, state, and local governments, and understand that air quality will improve when Tribes are recognized as strong co-regulators. As the 2020 STAR demonstrates, recognition of a Tribe's sovereignty, adequate consultation with Tribes, and adequate funding for air programs will provide all Americans with cleaner air to breathe and a better world for future generations.

Credits and Acknowledgments

The **2020 Status of Tribal Air Report** is the result of the dedicated work and contribution of many people, including Tribal representatives, organizations, and EPA personnel. We thank everyone that contributed a story, data, valuable time, effort, and resources to making this project a success. We acknowledge and thank the NTAA Executive Committee Members and Chairman, the NTAA STAR Work Group Members, NTAA Member Tribes, the Institute of Tribal Environmental Professionals (ITEP), and the Tribal Air Monitoring Support Center (TAMS).

In particular, we thank Joy Wiecks, NTAA Executive Committee member, for her willingness to contribute to almost every part of the 2020 STAR. Her work on the Budget Analysis, in partnership with April Hathcoat, Carol Kriebs, and Janice Archuleta, is deeply appreciated. Janice Archuleta and April Hathcoat also went above and beyond the call of duty in their contributions with submissions and review. Thanks goes to Karen Schumacher for her redesign of the Known Health Impacts from Air Pollution graphic. Special thanks also goes to all those who gave their time in reviewing drafts and putting on the finishing touches.

The following individuals contributed stories of their successes and challenges in operating Tribal air quality programs; the NTAA appreciates their invaluable time and contributions: Alyssa Diaz, Shawn McKenney, Rae O'Leary, James Payne, Stephen Kullmann, Dana Adkins, Joy Wiecks, Kris Ray, Ann Wyatt, April Hathcoat, Rob Roy, Craig Kreman, Janice Archuleta, Mary Fauci, Billie Toledo, Mark Daniels, Gillian Mittelstaedt, Scott Clow, Marjorie Connolly, Gina Boudreau, Brian Hamilton, Benjamin Giwojna, Chris Lee, Shawn Muir, Ruben Cu:k Ba'ak, Amy Boetcher, Cherylin Atcitty, Ernie Grooms, Pat Childers, and Secody Hubbard.

Furthermore, we thank the NTAA staff for their work in developing and publishing the Status of Tribal Air Report, specifically, Andy Bessler, Dara Marks Marino, and Mariah Ashley.

NTAA wishes to thank its federal partner, the U.S. EPA, in supporting the work and efforts of Tribal air quality programs. Specifically, we would like to thank EPA's Pat Childers, Laura

McKelvey, James Payne, Regina Chappell, Sarah Sullivant, Christine Koester, Lucita Valiere, Farshid Farsi, Toni Colon, and all of EPA's Regional Tribal Air Coordinators.

Appendix A: NTAA Tribal Air Quality Budget Analysis

Status of Tribal Air Report Budget Analysis June 2020

NTAA
NATIONAL TRIBAL AIR ASSOCIATION

NTAA
NATIONAL TRIBAL AIR ASSOCIATION

Cover photos:
Top row, left to right: Kootenai Tribe of Idaho air station, Bonners Ferry, Idaho; Twenty-Nine Palms Band of Mission Indians' air quality monitoring station, Coachella, California.
Middle row, left to right: Ute Mountain Ute Tribe's air quality station, Towaoc, Colorado; White Mountain Apache Timber Company site; Coeur d'Alene Tribe's air monitoring station.
Bottom row, left to right: Bishop Paiute Tribe's Air Quality Program's balloon launch with the National Weather Service; Shoshone-Bannock Tribe's primary site; Fond du Lac's air monitoring station.

The National Tribal Air Association (NTAA) was founded in 2002 through a grant from the EPA's Office of Air and Radiation. The NTAA serves to advance air quality management policies and programs, consistent with the needs, interests, and unique legal status of American Indian Tribes and Alaska Natives.

Goals of the NTAA:

1) Advocate for and advance Tribal environmental, cultural, and economic interests in the development of air policy at all levels of government (Tribal, local, state, regional, federal, and international).
2) Promote the development, funding, and capacity building of Tribal air management programs.
3) Promote and facilitate air quality policy and technical information that may include research and scientific and medical studies.
4) Advance the recognition and acceptance of Tribal sovereign authority by conducting effective communication and outreach to local, state, federal, and international agencies, as well as the general public.
5) Encourage and support appropriate consultation with all Tribal governments in accordance with Tribal structures and policies.

The NTAA is a Tribal member organization with 151 principal member Tribes. The NTAA uses its resources to support the efforts of all 574 federally recognized Tribal Nations in protecting and improving air quality under the Clean Air Act within their respective jurisdictions. Although the NTAA always seeks to represent consensus perspectives on any given issue, it is important that EPA understands interactions with the NTAA do not substitute for government-to-government consultation, which can be achieved only through direct communication between the federal government and the Tribes. More information on the NTAA can be found in the 2020 STAR.

1. Introduction

2020 is the 22nd anniversary of the promulgation of the Tribal Air Rule (TAR). The TAR has made it possible for Tribes to actively participate in the management of Tribal air resources to the degree that the Tribe is currently able, including the option of sole management by the Tribe. Over the last 22 years, Tribes have made great strides in taking on the challenges of

managing their air quality. Across the nation, Tribal air issues vary from permitting sources on-reservation, to monitoring for the criteria air pollutants, to participating in local, state, regional, and national work groups. Other program tasks include addressing indoor air quality issues, and reviewing and commenting on permits issued by other agencies.

However, as much as Tribes have progressed in the past 22 years, funding for Tribal air programs has become stagnant, even as program costs have increased, air quality issues such as wildfire smoke have worsened, and the cost of living has increased. Tribes are also expanding the areas of air quality management in which they participate, such as increasing participation in addressing emissions from mobile sources. Meanwhile, the nation seems to be operating in a near constant state of unpredictability when it comes to government funding in general. Continuing resolutions have become the new normal for Congressional spending, making it extremely difficult for Tribes to plan for future funding years and to keep operating without the government ever adjusting budget amounts. The activities carried out by Tribal programs have been impacted by funding shortfalls, with monitoring stations shut down and work group participation ending because travel and staffing funds are no longer available.

As the charts and tables in Appendix B of the 2020 STAR show, the work products delivered by Tribal programs have remained largely unchanged over the years, due to the hard work and dedication of Tribal staff when it comes to making do with very little, but this work cannot continue without an increase in funding. While FY2020 saw a modest increase in funding compared to the past seven years, it still falls far short of the high point in funding appropriation in FY2012, despite seven additional Tribes achieving federal recognition status, and the continuation of increases in cost of living.

Over the past several years, indicators of Tribal air program success grew in the following ways:

- The Treatment as a State (TAS) statute authorizes Tribes to manage programs under the CAA, including regulatory development, reviewing authority for Title V permits, the opportunity for PSD Redesignation of Reservation lands, air quality monitoring, etc. Between FY2012 and FY2020, the number of Tribes with non-regulatory TAS status increased from 34 to 60, and the number with regulatory TAS increased from 7 to 11.
- The number of Tribes currently operating air monitors, monitoring for criteria pollutants, hazardous air pollutants, and other pollutants under the National Atmospheric Deposition Program, has grown from 81 in FY2012 to 88 in FY2020.
- The number of Tribes with completed Emissions Inventories ranged from 74 in FY2012 to a peak of 86 in 2015, but has decreased to 62 in FY2020, down from 73 in FY2019.
- The number of Tribes with §103 grants increased from 67 in FY2017 to a peak of 82 in FY2018. This number fell to 74 in FY2020.
- The number of Tribes with §105 grants has increased from 34 in FY2015 to 47 in FY2020.

- 29 Tribes applied for, and 26 Tribes were determined eligible for, Volkswagen Settlement funds in the first round, which closed March 1, 2019, with approximately $6 million available. The second round closed August 20, 2019, and will disperse $14 million to 45 Tribes. The third round has been announced and is underway, with complete applications due August 28, 2020. These funds can be used in limited applications to replace certain old diesel engines with updated technology. However, not all applications may be useful to all Tribes.
- Since the DERA program began in 2009, 36 Tribes have received a total of $11.4 million in funds to replace old, dirty diesel engines or vehicles with cleaner options.

2. Development of a Tribal Air Program

The first thing most Tribes with new air programs do is to complete an emissions inventory (EI). This helps a Tribe plot its air program's future course and decide whether or what type of monitors might be needed. Obtaining TAS status is also a natural next step for many (but not all) Tribes, and movement from §103 to §105 funding indicates movement from "project" to "program" status. However, these progressions are not free of costs. A §105 program receives priority funding, but significant non-federal matching Tribal funds are required to supplement these federal funds. Given the economic challenges that many Tribes face, it can be difficult for them to come up with this money. Further, §105 status can be difficult for Tribes to obtain due to EPA delays and inconsistencies. Some Tribes choose not to apply for 105 funding because this requires submittal of proof of Reservation boundaries, which are sometimes still under contention by states or local governments. Monitors are expensive to purchase, operate, and maintain. These activities require extensive training and experience. While training is available through the Tribal Air Monitoring Support (TAMS) Center and the Institute for Tribal Environmental Professionals (ITEP) for free or at reduced costs, many Tribes do not have travel funds or cannot spare staff time. Travel scholarships are sometimes available, but are limited. Additionally, most Tribes that have an air program operate with only one air program staff member. It can be difficult to travel for training when there is no one else to help run the program.

Training and Creating Institutional Knowledge

Statistics from ITEP show that 499 Tribes and Tribal organizations (and 9,960 individuals) received training through 2019 at either ITEP or the TAMS Center. When compared to the total of 574 federally recognized Tribes, this means that about 87% of Tribes (or Tribal organizations) across the nation have received some type of Tribally focused, air quality specific, environmental training. It is interesting to note that about 60% of the individuals trained are no longer in the air quality field. Only 10% of individuals who take an introductory air quality course go on to take five or more courses, indicating that overall Tribal air quality staff do not receive more than entry-level training.

Instructors notice that some Tribes send multiple staff to trainings. It is possible that this reflects growth of an air program because many Tribes begin air training with their General Assistance Program (GAP) staff, then expand to dedicated Tribal air staff and sometimes to supervisors or multiple staff members.

While it is possible that some programs are experiencing growth (as evidenced by having multiple staff from a single Tribe at a given training), it is also likely that the low percentage of individuals who go on to receive advanced training is reflective of high turnover rates in Tribal air programs due to stagnant wages and relatively low wages in comparison to state and federal counterparts. While many Tribes already know this to be true from their own personal experience, training data from the TAMS Center and ITEP support this statement. Since the number of Tribes with air grants is not increasing and Tribes with established air programs almost exclusively receive the available funding, the conclusion must be that Tribes are continually sending new staff to beginner level trainings to maintain air quality monitoring proficiency. It is rare or challenging to find enough participants to fill advanced level training classes.

Monitoring

A recent survey of Tribes operating monitors demonstrates that a significant portion of the monitors deployed in Indian Country are over ten years old. Although the data is not complete, the percentage of Tribal monitors older than ten years old could well be over 50%. Meanwhile, the number of Tribes with monitoring programs has increased only slightly, from 81 in 2012 to 88 in 2020. Tribes operating monitors report that even if there is money in their budget for day-to-day operation of these monitors, there often is not enough for audits, spare parts, repairs, or training.

It is difficult for Tribes to plan for repair and/or replacement of monitors because programs never know how long a monitor may continue to operate. Tribes can apply for funds for repair and replacement but unused funds need to be returned to the EPA at the end of each grant cycle and there is no guarantee they will be awarded again. Tribes try to make the best possible decisions as to whether a malfunctioning monitor needs to be replaced or if it can be repaired. The problem with this approach is that a program may invest thousands of dollars into repairs only to find these to be ineffective and have to pay thousands more to replace the monitor. The increasing cost of new monitors has also exacerbated this situation – while Tribes are continually expected to do more with less, the cost of a new monitor is estimated to have increased by about $3,000 over the past few years.

Purchasing new or upgraded software for a monitor is another cost that is often unplanned for. A monitor may be operating correctly but need a software upgrade in order to keep operating or to keep communicating with a data logger or with a Tribe's IT department. Software licensing costs around $2,500 per year but there are additional associated costs, such as sending the monitor to the manufacturer for the upgrade (hourly charge plus shipping) plus the inconvenience of having the monitor out of service for several days.

Ongoing vendor or outside technical support also increases annually. Tribes contract with outside entities to provide lab work, help with audits of monitoring equipment, and write quality assurance project plans.

Although the lack of reservation-specific monitoring data is detrimental to Tribes, it is also a loss for the monitoring community at large. CASTNET contacts at EPA say they would like to see more Tribal monitors in the central and northwest parts of the country, where gaps exist in the existing network, as can be seen in Figure 3. EPA consequently needs to rely on modeling data for locations where they do not have monitoring sites. Modeling is less accurate than data from monitors, especially if the spatial gaps between monitors are large. In conclusion, good data collection takes time and money.

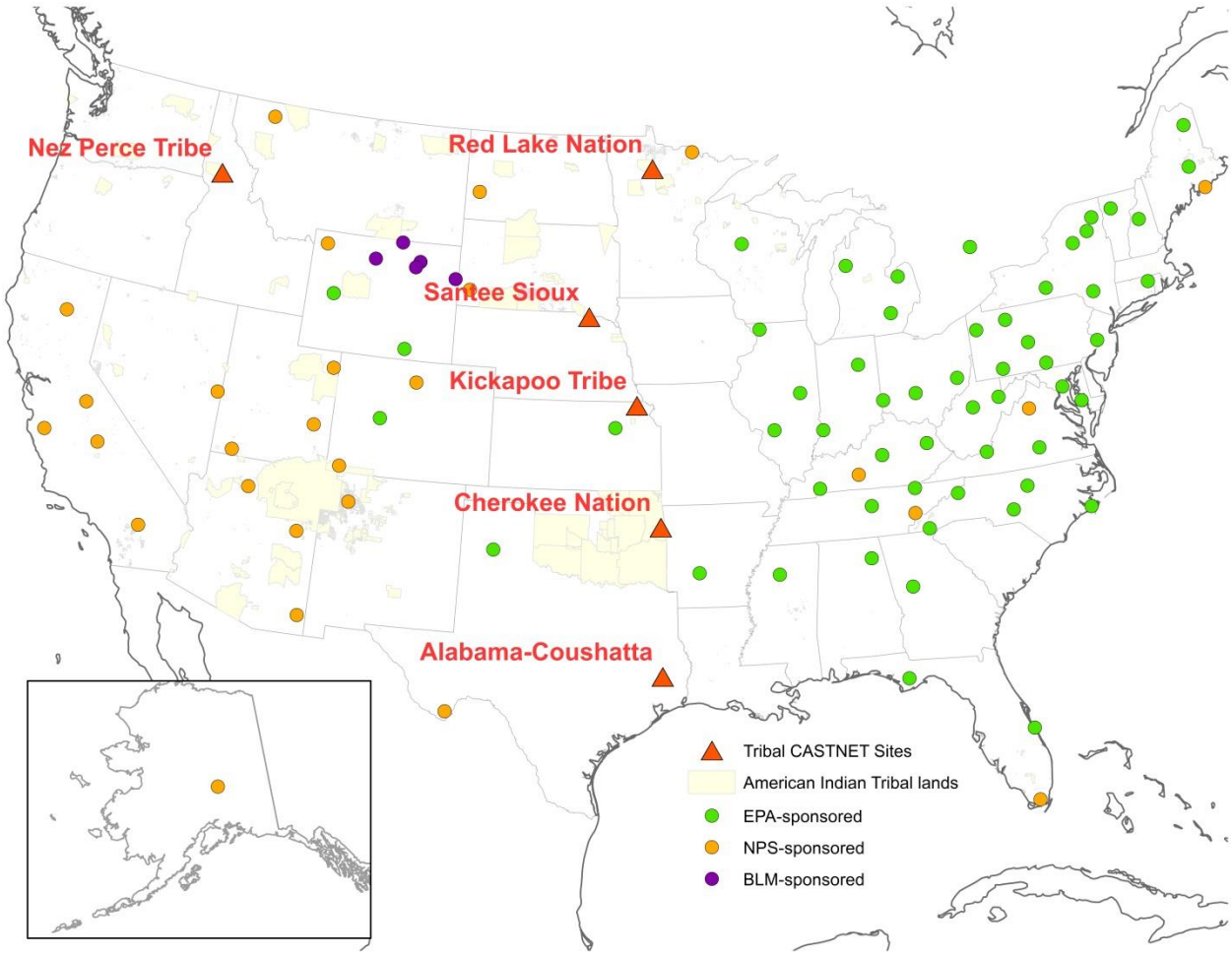


Figure 3 Tribal CASTNET Sites

3. Funding Impacts on Tribal Air Programs

Stagnant or reduced Tribal funding impacts Tribes through a lack of completion of emissions inventory updates, reduced participation in Regional Planning Organizations (RPOs), and reduced ability to address non-attainment areas. Completed Tribal emissions inventories have decreased from 86 in 2015 to 62 in 2020, likely because funds are not available to update them after five years. RPO funding has simply disappeared since the early 2000s, meaning that Tribes cannot meaningfully participate in regional air quality decision making. The number of Tribal non-attainment areas has increased by 20% from 2018-2020 but monitoring budgets have not increased accordingly, leading to reduced ability for Tribes to address non-attainment areas.

The decrease in funding to both the EPA and to Tribal air programs is a double-edged sword when it comes to implementing the CAA on Tribal lands. Tribes are increasingly unable to "do it all" as a result of insufficient funding to meet their needs and must rely on EPA to address air pollution and compliance assurance issues on their reservations. Since EPA regional offices are located in urban areas, extensive travel on the part of EPA staff is required to conduct inspections or permitting site visits on or near reservations. However, decreased funding within EPA has made it even more difficult for EPA staff to justify travel to Indian Country. It would be more cost efficient to train Tribal staff to perform site inspections and to work with facilities on compliance assurance with the added benefit of trained staff who are locally situated to respond quickly to emergencies.

Likewise, any loss of Tribal monitors can place an additional burden on state agencies, some of whom have come to rely on Tribally purchased monitors and Tribal staff to operate equipment that helps the state assess its air quality and meet monitoring placement requirements.

Air Quality Needs Assessment

The preamble to the Tribal Authority Rule clearly stated the need for EPA to conduct a needs assessment for maintaining and improving air quality in Indian Country. While narrowly constructed needs assessments have been performed to address such things as capacity building, drinking water/wastewater, and indoor air quality funding, no comprehensive assessment of the air quality management needs in Indian Country exists today. Such an assessment would cost on the order of $500,000 but would provide a wealth of information to EPA. The NTAA has consistently made the request for a comprehensive air quality needs assessment since 2016.

Unfunded Priorities

In recent years, the EPA's priorities have changed, as shown by changes from previous years in the Strategic Plan and the National Program Manager's Guidance. Several important areas have been removed from these planning documents, including indoor air quality, radon, and

climate change. These areas are especially important in Tribal communities because of the high poverty rate, high rates of asthma and diabetes, old and failing housing stocks, and old and failing infrastructure. Many Tribal homes are energy inefficient and were poorly built according to plans that did not take into account the local climate. Therefore, cases of mold are common and widespread. Increased flooding due to climate change has exacerbated the problem for many Tribes. Wildfire smoke is increasingly a concern for Tribal indoor air quality and ambient air quality, as wildfires have grown in incidence, size, and duration. Radon is a naturally occurring element found in many Tribal homes and offices. Remediation is relatively cheap (about $2,200 per home) and effective but Tribal funding for evaluating these homes has decreased drastically and funding has never been available for remediation. Poor air quality due to climate change is a great concern for Tribes in many ways, including increased mold from flooding, increased impacts from wildfires, increased construction debris from floods and fires, increased levels of pollen from longer growing seasons, and increased levels of ozone due to higher temperatures. Climate change is also an issue that will have huge impacts on Tribes, from the loss of important species and other resources, such as crops and grazing land, and the increasing impacts of wildfires, drought, flooding, severe weather, and the erosion of topsoil in the western mountain states (which also leads to dust generation).[1] In short, not only are Tribes losing ground in terms of funding, but they are increasingly unable to direct what funds they receive to the issues that may need the most attention.

Unexpected Interruptions and Concerns

The introduction of the novel coronavirus has the potential to greatly impact Tribes, because it impacts the government, the public, and the public employee sector all at once. Tribal governments need to take whatever actions are appropriate to protect what is, in most cases, a severely underserved population with extremely prevalent underlying health issues. Tribal governments and workers are consistently underfunded and understaffed but must be prepared to take care of their people because they have little assurance that any other governmental entity will do so, they know best how to care for their people, and taking care of the vulnerable is a core Tribal value.

This may impact Tribal air programs in terms of completing work and meeting grant deadlines for deliverables. If Tribal buildings are closed, healthy employees will need to work from home. This introduces costs for providing computers, internet access, and software for these employees, along with providing cyber security and possibly for purchasing additional servers. Meanwhile, there are no cost savings on unused office spaces, since those spaces will eventually be filled once again.

[1] "Wind erosion and dust from US drylands: a review of causes, consequences, and solutions in a changing world". Ecosphere. 18 March 2019. https://doi.org/10.1022/ecs.2650.

4. Tribal Air Program Budget Analysis

Tribes are not the only air agencies struggling with stagnant budgets. The National Association of Clean Air Agencies' (NACAA) website states that the EPA budget for state and local air grants has remained steady for about 15 years at roughly $228 million despite increased workloads, rising costs of inflation, and health care.[2] NACAA showed that if this $228 million amount was adjusted for inflation it would translate into $315 million in today's dollars. As demonstrated in this budget analysis, Tribal air budgets have many additional challenges, beyond stagnancy.

FY2019

The 2020 STAR has shown that the health concerns facing Tribal nations have increased in recent years, while funding has remained stagnant, at best. From FY2012-FY2017, overall EPA funding remained fairly steady, reaching a peak of $8.45 billion in FY2012, but followed a downward trend to a FY2018 budget of $5.6 billion. In FY2019, funding increased only slightly to $6.1 billion, meaning that the agency is still fighting to continue its efforts to protect air quality across the US and in Indian Country. Tribal air funding comes almost solely from EPA State and Tribal Assistance Grants (STAG). Peak Tribal funding occurred in 2012 at $12.49 million, but only totaled $11.35 million in FY2019. Most Tribes do not have the funding base to pay for these programs themselves. Tribes are unable to raise revenue through taxation, and even if they could do so, taxation would be unlikely to lead to much revenue. For those Tribes with the capacity to raise funds through other methods such as business ventures, providing housing and health care for their membership takes precedent since many Tribal members live below the poverty level. Replacing aging infrastructure on reservations is also a priority. Many Tribes also operate K-12 schools, colleges, detention facilities, and substance abuse treatment centers, to name just a few governmental entities that require internal revenue streams.

Because federal CAA funding has been stagnant, Tribes with existing air programs receive the vast majority of available funds, meaning that hundreds of remaining Tribes have little hope of establishing air programs, even though they may face serious air quality issues or exist in non-classified air sheds. Even as funding remains stagnant, the number of federally recognized Tribes has grown from 566 in 2012 to 574 in 2019. This problem is especially apparent in Region 3, where the number of federally recognized Tribes has grown from 0 in 2015 to 7 in 2018. None of these Tribes currently receives air funding.

This stagnation in funding can be seen in the leveling off or even decreases in the types of activities that indicate a growing Tribal air program, such as completion (or updating) of emissions inventories, the movement of Tribes from §103 to §105 funding, placement of new Tribal monitors, or submittal of new quality assurance project plans, and the pursuit of

[2] "FY 2018 Budget and Congressional Appropriations." *NACAA - National Association of Clean Air Agencies*, http://www.4cleanair.org/sites/default/files/Documents/NACAA_FY2021_Oral_Testimony-House.pdf

authorities such as Class I Redesignation, permitting authorities, Tribal Implementation Plan development, and TAS status. Figure 4 contrasts Tribal funding with rising inflation and cost of living increases.

FY2020

The President's budget proposal for FY2020 requested $6.1 billion for EPA, which is a $2.8 billion (or 31%) decrease from the 2019 estimate, and proposed to "eliminate many voluntary and lower-priority activities," although no further details were provided. STAG funds were 43.4% of this amount, or $2.6 billion. On a somewhat more positive note, the budget proposed to enhance monitoring of America's significant watersheds, particularly those requiring collaboration among numerous states, Tribes, and local or international governments. The NTAA recommends that the Administration propose a similar approach to enhancing air monitoring across the nation.

FY2021

The President's proposed budget for FY2021, released on February 10, 2020, provides $6.7 billion for EPA, which would be an increase of $6 million, or 9.8%, compared to FY2020. Highlights of the budget include: protecting children's health, reducing lead exposure, taking action on PFAS, reducing harmful algal blooms, and reducing regulatory overreach.

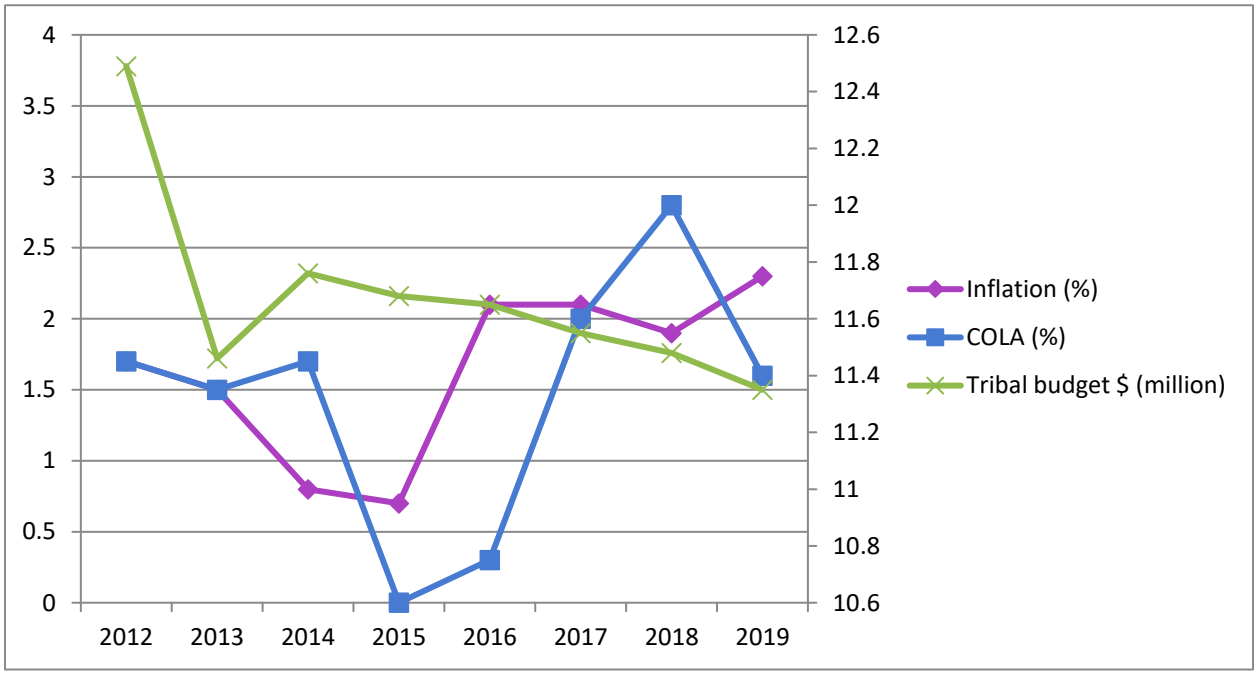


Figure 4 Tribal Funding vs. Cost of Living Adjustments (COLA) and Inflation

Increasing Tribal Monetary Needs

Program costs for health insurance benefits have continued to increase each year, decreasing the amount of program budgets available for staffing, equipment, supplies, training and transportation costs. In the period from 1991-2014, the average annual increase in health care costs in the US was 4.9%.[3] From 2015-2017, these costs increased by 3% annually - slower, but still outpacing federal funding for Tribal programs. In 2018, the average premium for single coverage increased by 3% over 2017 and the average premium for family coverage increased by 5% (for our calculations, an average of 4% was assumed).[4] The US Department of Labor estimates that benefits combined are worth about 30% of an employee's total compensation package.[5] Many Tribes have higher compensatory costs than these, especially if their staff members have been employed with the Tribe for several years – their experience makes them very valuable but their salaries are higher than newer staff with less experience.

The problem of high employee turnover is explored in a February 4, 2016, article by Christina Merhar on the website Peoplekeep.com.[6] The article claims that replacing a business employee costs an average of 6 to 9 month's salary due to hiring costs, training, and lost work time while the new employee comes up to speed. Similarly, a study by the Center for American Progress found that the cost of training a new employee can be roughly 16% of annual salary for those earning below $30,000, and 20% of annual salary for those earning between $30,000 and $50,000. These costs are highly detrimental to Tribes and their air programs. As outlined above, Tribal air programs have difficulty retaining staff, due to stagnant wages and low wages relative to their state and federal counterparts.

Estimating that about 80% of any Tribe's air budget goes to salary and compensation, the 1996 initial appropriation of $11 million, if increased to account for rising health care costs, would need to total a $31 million appropriation today. Indirect costs, which are negotiated with the federal government, can also increase fairly drastically without warning, meaning that air budgets have already been set and must be revised to absorb the difference. These include administrative costs, space costs, and security costs. Improved grants management across EPA Regions may help with this issue.

If we look at the same problem in terms of general inflation, the 1996 initial appropriation of $11 million would total $18.1 million in FY2020 dollars if it kept pace with inflation

[3] https://www.kff.org/other/state-indicator/avg-annual-growth-percapita/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D. Sources: Centers for Medicare & Medicaid Services, Office of the Actuary, National Health Statistics Group. National Health Expenditure Data: Health Expenditures by State of Residence, June 2017.

[4] https://www.kff.org/report-section/2018-employer-health-benefits-survey-section-1-cost-of-health-insurance/

[5] Steve Santiago, "The value of employer benefits," May 11, 2009, CAREER. Found at https://www.bankrate.com/finance/financial-literacy/the-value-of-employer-benefits.aspx.

[6] Merhar, C. (2016, February 4). *Employee Retention – The Real Cost of Losing an Employee*. Retrieved from https://www.peoplekeep.com/blog/bid/312123/employee-retention-the-real-cost-of-losing-an-employee.

(www.usinflationcalculator.com). Instead, at $11.77 million, absolute funding has barely changed and is, by these calculations, underfunded by 35%.

5. Conclusions and Recommendations

Based on the need for increased funding as outlined in this analysis, the NTAA recommends that the EPA consider the two budgeting solutions proposed below to alleviate some of the financial pressure on Tribal air programs. Both solutions exclude the cost of a comprehensive air quality needs assessment, which would require approximately $500,000 of additional, dedicated funding.

Solution 1 accounts for basic inflationary costs, and totals $18.1 million. This is an increase of $7.1 million over the FY1996 appropriation, but in today's dollars is equal to that year's appropriation.

Solution 2 accounts for increases in health care costs, and totals $31 million. Cost of living increases and basic inflationary costs are not included in this figure.

FY1996 appropriation	**Solution 1: FY2021 (inflationary adjustment)**	**Solution 2: FY2021 (health care costs adjustment)**
$11 million	$18.1 million	$31 million

Appendix B: Data Tables of Tribal Air Quality Programs and Grants

Tribal Air Quality Monitoring Programs and Projects

Tribes significantly contribute to air quality protection, exercising Tribal sovereignty through air quality program activities. At the request of the NTAA, EPA's Office of Air and Radiation provided a set of data summarizing Tribal air activities from 2012-2020. A broad national summary of Tribal air quality programs can be found below, followed by regional summaries, with additional explanations of terms used in Appendix C.

The following data is used by the EPA to create budgets that influence CAA grant funding available to Tribes. The presentation of this data is illustrated in a simplified layout that is both easier to understand and more useful to readers. This simplified layout serves the important purpose of highlighting recent declines of funding and stagnation of Tribal air quality programs.

Please see **Appendix A** for a more in-depth Tribal Air Program budget analysis, which references these tables as well. The data set was provided to the NTAA by EPA's OAR Tribal System (OTS) database.

National Summary of Tribal Air Quality Programs

National Summary of Tribal Air Quality Programs									
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
STAG Funding (in millions)	$12.49	$11.46	$11.76	$11.68	$11.65	$11.55	$11.48	$11.35	$11.77
Tribes Operating Air Monitors	81	83	84	83	85	83	85	86	88
Tribes w/ Completed EIs	74	73	84	86	84	80	78	73	62
Tribes w/ Non-Regulatory TAS	34	38	45	46	48	49	52	53	60
Tribes w/ Regulatory TAS	7	8	8	8	10	10	10	10	11
Major Sources on Reservations*	167	159	863	1626	1900	2991	342	367	368
Tribal Non-Attainment Areas	201	156	156	202	167	166	166	198	199
Tribes with 105 Grants	25	25	32	34	35	39	40	40	47
Tribes with 103 Grants	84	84	96	77	78	75	82	78	74

Table 3 National Summary of Tribal Air Quality Programs

***The values shown in this table reflect annual totals for all regions. The steep rise of Major Sources on Reservations in 2014-2017 is due to the introduction of new major source registration rules, which were applied to previously identified sources. This jump in major sources was caused by increased regulation, not by new pollutant sources. 2018-2020 totals are reflective only of actual permitted sources in Indian country.

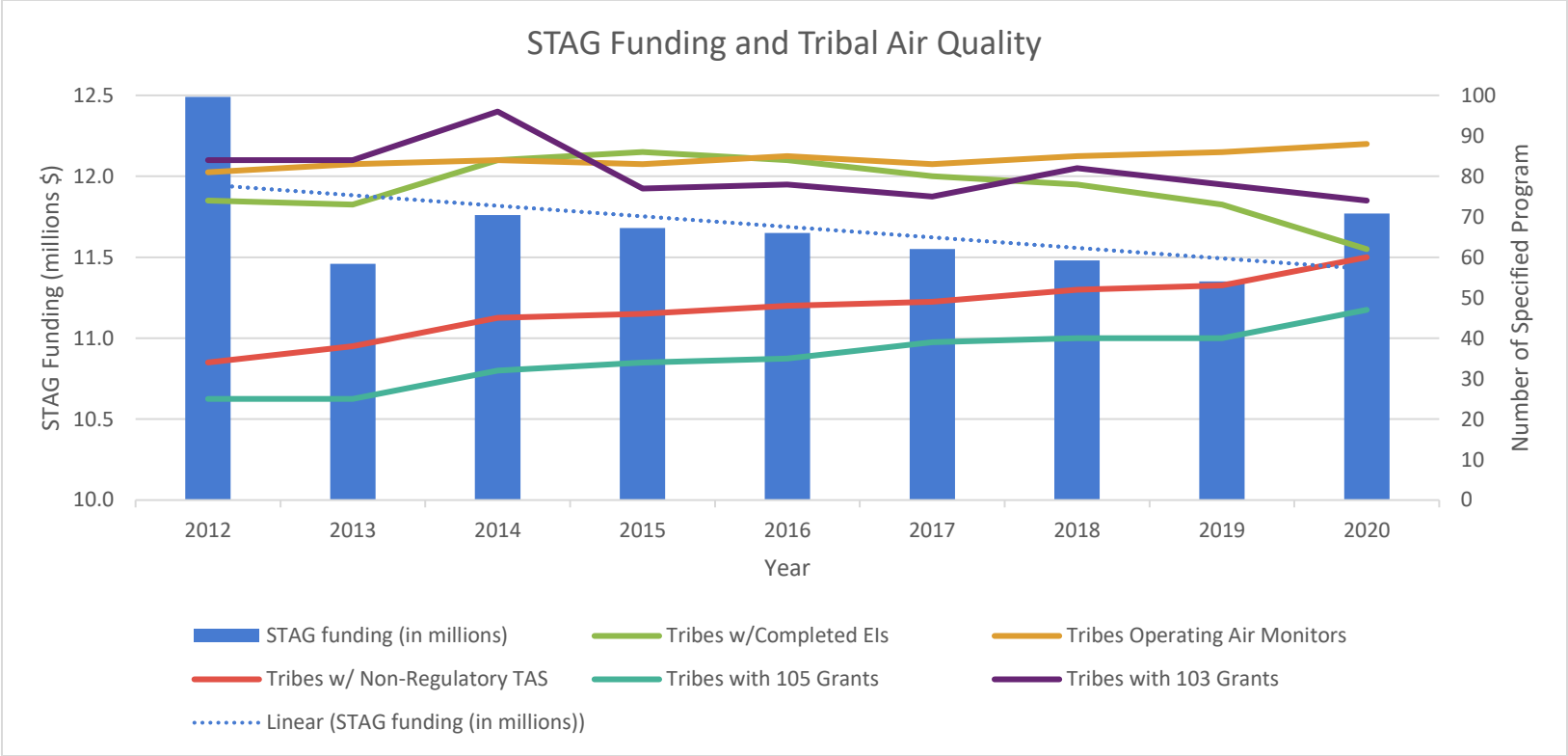


Table 4 STAG Funding and Tribal Air Quality Programs

Using the data provided, the average decrease of STAG funding is $90,000/year from the time period of 2012 to 2020 (indicated by the "Linear" trend line). This decrease does not account for Cost of Living Adjustments (COLA). See **Appendix A: NTAA Tribal Air Quality Budget Analysis** for analysis of this information.

Regional Summaries of Tribal Air Quality Programs

Table 5 Regional Summaries of Tribal Air Quality Programs

Region 1 - Summary of Tribal Air Quality Programs									
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
STAG Funding (in thousands)	$657	$614	$623	$622	$594	$576	$566	$554	$621
Tribes Operating Air Monitors	4	5	5	5	5	5	5	5	5
Tribes w/ Completed EIs	1	1	1	1	1	1	1	1	0
Tribes w/ Non-Regulatory TAS	1	2	2	2	2	2	2	2	4
Tribes w/ Regulatory TAS	2	2	2	2	2	2	2	2	2
Major Sources on Reservations	2	2	2	2	2	2	2	2	2
Tribal Non-Attainment Areas	5	5	5	5	3	3	3	3	5
Tribes with 105 Grants				2	2	2	2	2	4
Tribes with 103 Grants	8	8	8	4	4	4	5	5	4

Region 2 - Summary of Tribal Air Quality Programs									
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
STAG Funding (in thousands)	$440	$424	$425	$418	$403	$394	$389	$380	$368
Tribes Operating Air Monitors	1	1	1	1	1	1	1	1	1
Tribes w/ Completed EIs	0	1	1	1	1	1	1	0	0
Tribes w/ Non-Regulatory TAS	1	1	1	1	1	1	1	1	1
Tribes w/ Regulatory TAS	1	1	1	1	1	1	1	1	1
Major Sources on Reservations	1	1	1	1	1	1	1	1	1
Tribal Non-Attainment Areas	5	4	4	4	1	1	1	1	1
Tribes with 105 Grants				1	1	1	1	1	1
Tribes with 103 Grants	2	2	2	0	2	1	1	1	1

Region 3 - Summary of Tribal Air Quality Programs	
	2020
STAG Funding (in thousands)	$77
Tribes Operating Air Monitors	0
Tribes w/ Completed EIs	0
Tribes w/ Non-Regulatory TAS	0
Tribes w/ Regulatory TAS	0
Major Sources on Reservations	0
Tribal Non-Attainment Areas	0
Tribes with 105 Grants	0
Tribes with 103 Grants	0

Region 4 - Summary of Tribal Air Quality Programs									
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
STAG Funding (in thousands)	$331	$312	$317	$313	$316	$327	$328	$322	$317
Tribes Operating Air Monitors	1	2	2	3	3	4	4	3	3
Tribes w/ Completed EIs	1	1	2	2	2	2	2	2	3
Tribes w/ Non-Regulatory TAS	1	1	1	1	1	1	1	1	1
Tribes w/ Regulatory TAS	0	0	0	0	0	0	0	0	0
Major Sources on Reservations	0	0	0	0	0	0	0	0	0
Tribal Non-Attainment Areas	1	0	0	0	0	0	0	0	0
Tribes with 105 Grants				1	1	1	1	1	1
Tribes with 103 Grants	2	2	3	3	3	4	4	3	3

Region 5 - Summary of Tribal Air Quality Programs									
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
STAG Funding (in millions)	$1.26	$1.15	$1.18	$1.23	$1.23	$1.23	$1.28	$1.29	$1.28
Tribes Operating Air Monitors	11	11	12	12	12	14	14	14	14
Tribes w/ Completed EIs	14	14	15	16	18	19	20	20	10
Tribes w/ Non-Regulatory TAS	4	4	5	5	5	6	7	7	8
Tribes w/ Regulatory TAS	0	0	0	0	0	0	0	0	0
Major Sources on Reservations	13	15	15	15	15	16	17	17	19
Tribal Non-Attainment Areas	5	5	5	5	4	4	4	4	4
Tribes with 105 Grants				5	5	5	7	7	8
Tribes with 103 Grants	15	15	19	11	12	10	10	9	8

Region 6 - Summary of Tribal Air Quality Programs									
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
STAG Funding (in millions)	$1.31	$1.17	$1.18	$1.18	$1.14	$1.14	$1.11	$1.07	$1.17
Tribes Operating Air Monitors	5	5	4	4	5	5	7	7	6
Tribes w/ Completed EIs	8	8	14	15	11	12	9	5	10
Tribes w/ Non-Regulatory TAS	2	2	3	3	4	4	5	6	7
Tribes w/ Regulatory TAS	0	0	0	0	0	0	0	0	0
Major Sources on Reservations	6	6	6	6	11	10	9	9	13
Tribal Non-Attainment Areas	0	0	0	0	0	0	0	0	1
Tribes with 105 Grants				0	0	1	1	1	3
Tribes with 103 Grants	9	9	9	10	7	8	15	12	11

Region 7 - Summary of Tribal Air Quality Programs									
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
STAG Funding (in thousands)	$465	$434	$500	$525	$535	$535	$575	$605	$563
Tribes Operating Air Monitors	4	4	5	4	4	4	5	6	4
Tribes w/ Completed EIs	6	6	6	6	6	6	6	6	4
Tribes w/ Non-Regulatory TAS	0	1	2	2	2	2	2	2	2
Tribes w/ Regulatory TAS	0	0	0	0	0	0	0	0	0
Major Sources on Reservations	4	4	4	4	4	4	4	4	4
Tribal Non-Attainment Areas	0	0	0	0	0	0	0	0	0
Tribes with 105 Grants				1	0	1	2	2	1
Tribes with 103 Grants	4	4	7	7	7	7	5	6	6

Region 8 - Summary of Tribal Air Quality Programs									
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
STAG Funding (in millions)	$2.11	$2.00	$2.10	$2.07	$2.00	$1.98	$1.89	$1.83	$1.89
Tribes Operating Air Monitors	10	10	10	10	10	10	9	9	11
Tribes w/ Completed EIs	18	13	14	14	14	8	8	8	4
Tribes w/ Non-Regulatory TAS	7	7	9	9	9	9	9	9	10
Tribes w/ Regulatory TAS	1	1	1	1	1	1	1	1	2
Major Sources on Reservations*	86	89/706**	702	1451	1719	2806	261	289	268
Tribal Non-Attainment Areas	3	3	3	3	3	3	3	4	2
Tribes with 105 Grants				7	6	8	8	8	8
Tribes with 103 Grants	11	11	11	14	14	13	13	13	16

*The steep rise of Major Sources on Reservations in 2014-2017 is due to the introduction of new major source registration rules, which were applied to previously identified sources. This includes newly identified oil and gas sources required to be registered for PSD permits. 2018 totals are reflective only of actual permitted sources in Indian country.

** In 2013, Region 8 reported this data using both old and new rules.

Region 9 - Summary of Tribal Air Quality Programs									
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
STAG Funding (in millions)	$3.26	$2.93	$2.97	$2.89	$2.97	$2.92	$2.87	$2.84	$2.88
Tribes Operating Air Monitors	29	29	29	29	30	29	27	28	30
Tribes w/ Completed EIs	17	19	21	21	24	24	24	24	10
Tribes w/ Non-Regulatory TAS	7	7	9	10	11	11	12	12	12
Tribes w/ Regulatory TAS	2	2	2	2	4	4	4	4	5
Major Sources on Reservations	21	21	21	21	22	22	22	18	25
Tribal Non-Attainment Areas	170	137	137	183	154	154	154	185	185
Tribes with 105 Grants				4	7	7	5	6	7
Tribes with 103 Grants	23	23	23	26	26	25	25	24	20

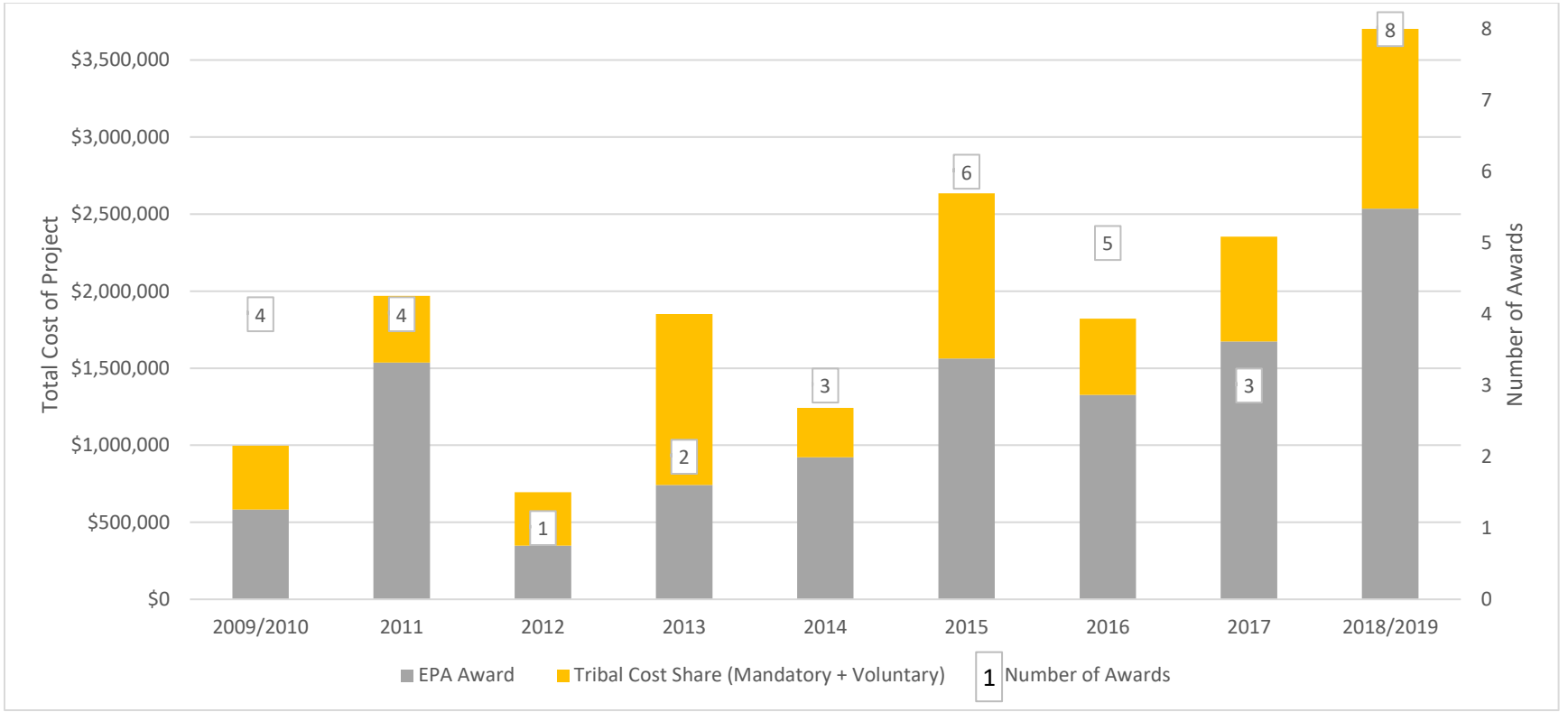
Region 10 - Summary of Tribal Air Quality Programs									
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
STAG Funding (in millions)	$2.66	$2.42	$2.47	$2.44	$2.46	$2.45	$2.47	$2.44	$2.60
Tribes Operating Air Monitors	16	16	16	15	15	13	13	13	14
Tribes w/ Completed EIs	9	10	10	10	7	7	7	7	21
Tribes w/ Non-Regulatory TAS	11	13	13	13	13	13	13	13	15
Tribes w/ Regulatory TAS	1	2	2	2	2	2	2	2	1
Major Sources on Reservations*	34	110	112	126	126	130	26	27	36
Tribal Non-Attainment Areas	12	2	2	2	1	1	1	1	1
Tribes with 105 Grants				13	13	13	13	12	14
Tribes with 103 Grants	10	10	14	2	3	3	4	5	5

*The steep rise of Major Sources on Reservations in 2014-2017 is due to the introduction of new major source registration rules, which were applied to previously identified sources. 2018 totals are reflective only of actual permitted sources in Indian country.

Tribal Diesel Emissions Reduction Act (DERA)

EPA's Tribal DERA program awards grants to federally recognized Tribes, intertribal consortium, or Alaskan Native Villages for projects that reduce emissions from diesel engines. The Tribal DERA program requires a high cost share commitment, which is a barrier for most Tribes. The graph below provides the total amount awarded from EPA, the total amount of cost share borne by the Tribes, and the total number of awards for each year since the program began in 2009. In 2020, the NTAA wrote to the EPA with recommendations on ways to improve the Tribal DERA program so that Tribes can better utilize the funds. For more information, see the related narrative in Section 3.4 Mobile Sources.

Table 6 Tribal DERA Grant Awards



Appendix C: NTAA's 2020 Update: A White Paper Detailing the Science and Connections Between Air Pollution, Tribes, and Public Health

Suggested citation: *Wiecks, Joy, Dara Marks-Marino, Jaime Yazzie. "National Tribal Air Association's 2020 Update to: A White Paper Detailing the Connections Between Air Pollution, Tribes, and Public Health." National Tribal Air Association, April 2020*

The National Tribal Air Association (NTAA) was founded in 2002 with a grant from the United States Environmental Protection Agency's Office of Air and Radiation with a mission to advance air quality management policies and programs, consistent with the needs, interests, and unique legal status of American Indian Tribes and Alaska Natives. Since 2002, NTAA has grown to include over 150 federally recognized member Tribes making NTAA the nation's second largest national Tribal membership organization. Tribes are important partners with federal, state and local agencies to protect ambient air quality, indoor air quality and mitigate climate change.

Each year, the NTAA publishes the Status of Tribal Air Report (STAR), which includes a section highlighting the health impacts of common air pollutants. This white paper seeks to provide a careful analysis into the science and research behind the health impacts of air pollution, and to help Tribes write effective comments on proposed regulatory actions that will impact the health and well-being of their Tribal members and lands.

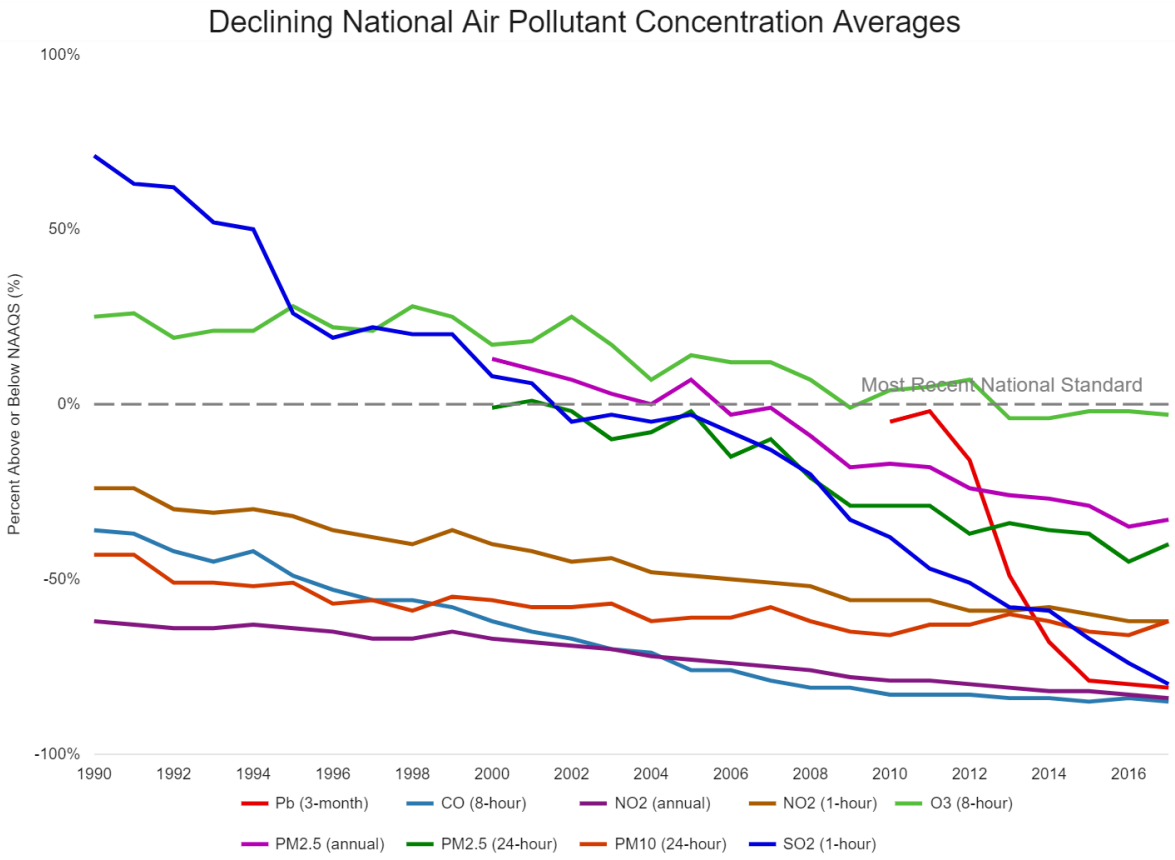
Background

2020 marks the 50th Anniversary of the promulgation of the Clean Air Act (CAA). Many people working in the field of air quality will not be able to remember a time before this landmark piece of legislation was enacted. One of the most important things the CAA did was to define the six criteria pollutants that form the backbone of its regulatory efforts. These pollutants are: nitrous oxides (NOx), sulfur dioxide (SO2), particulate matter (PM), lead, ground level ozone (O_3), and carbon monoxide (CO), and are known as the National Ambient Air Quality Standards, or NAAQS.

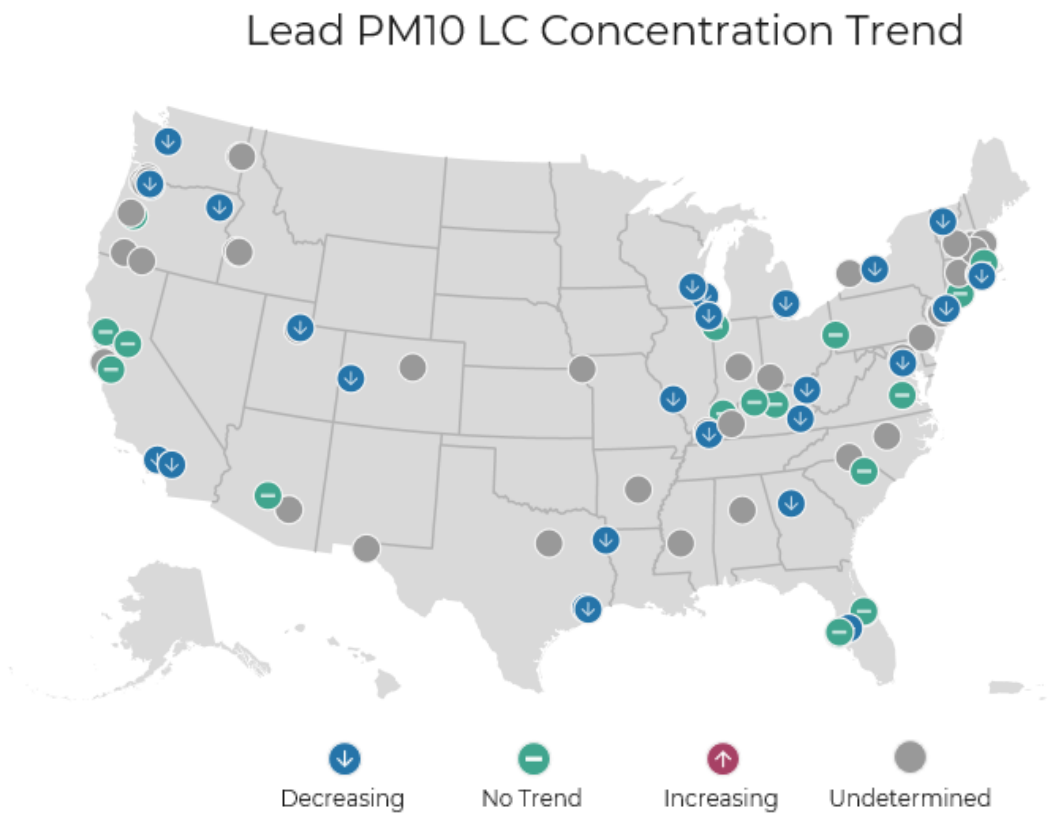
During the past 50 years, much has been learned about how these criteria pollutants adversely impact the human body. Study after study has shown the detrimental health effects of pollutants on our bodies in the areas of respiration, reproduction, endocrine systems, and more, meaning that reductions of pollutants are important for public health reasons. Some of the successes of the CAA are demonstrated by the following metrics:

1. **Emissions Decreases**

- In the years between 1970 and 2018, the combined emissions of the six criteria pollutants (NOx, SO2, PM, O_3, CO, and lead) have decreased by 74%.
- Ambient air quality concentrations fell by these amounts between 1990 and 2018:
    - O_3 – 21%
    - SO_2 – 89%
    - NOx – 57%
    - CO – 74%
- Ambient concentration of $PM_{2.5}$ decreased by 39% between 2000 and 2018
- Between 2010 and 2018, lead emissions fell by 82%
- Between 2016 and 2018, lead emissions fell by 12% and SO_2 emissions by 22%



(Table is from https://www.epa.gov/clean-air-act-overview)



(Table is from https://www.epa.gov/clean-air-act-overview)

2. Health Impacts and Improvements

A new study looked at seven separate datasets for fine particulates in New York State and found that as $PM_{2.5}$ levels dropped by 28-37% between 2002 and 2012, air pollution mortality correspondingly dropped by 67%, from 8,410 premature deaths in 2002 to 2,750 in 2012 – saving an estimated 5,660 lives.[7]

A separate study showed that a 13 month closure of a steel mill in the Utah Valley led to a 50% decrease in winter PM_{10} concentrations, a 40% in school absenteeism, a 16% decrease in deaths, a decrease in the number of premature births, as well as a decrease in the number of "hospital admissions for pneumonia, pleurisy, bronchitis, and asthma," especially among children.[8]

Although the health impacts of air pollution on cardiovascular disease, cerebrovascular disease, chronic obstructive pulmonary disease, type 2 diabetes, lung cancer, and pneumonia have long been identified, a study published in November of 2019 showed the relationship between $PM_{2.5}$

[7] Xiaomeng Jin et al. (2019). Comparison of multiple PM2.5 exposure products for estimating health benefits of emission controls over New York State, *Environmental Research Letters*. DOI: 10.1088/1748-9326/as2dcb

[8] Schraufnagel, D. E., Balmes, J. R., De Matteis, S., Hoffman, B., Kim, W. J., Perez-Padilla, R., Rice, M., Sood, A., Vanker, A., & Wuebbles, D. J. (2019). Health Benefits of Air Pollution Reduction. *Annals of the American Thoracic Society*, *16*(12), 1478-1487. https://doi.org/10.1513/annalsats.201907-538cme

and death from these conditions, and identified three new causes of death attributable to $PM_{2.5}$: chronic kidney disease, hypertension, and dementia.[9]

An EPA study[10] shows that, in 2010 alone, reductions in fine particulates and ozone due to the Clean Air Act Amendments (CAAAs) of 1990 had the following impacts:

- More than 160,000 premature deaths were avoided, along with 130,000 heart attacks, millions of cases of respiratory problems, and 86,000 hospital admissions.
- More than 13 million lost work days were avoided.
- 3.2 million lost school days were avoided.
- In 2020, the CAAAs will prevent over 230,000 early deaths, 200,000 heart attacks, 120,000 emergency room visits, 5.4 million missed school days, and 17 million missed work days.

Additionally, long-term reductions in air pollution have had positive effects on the respiratory systems of children ages 11-15.[11]

3. Attainment

According to the most recent monitoring data, more than 80% of low-income counties are in attainment with the NAAQS, compared with only 43% in 2008.

4. Energy and Transportation

Even as pollution has decreased, vehicle miles traveled have increased by 189% since 1970, while the population has grown by 59% and energy consumption by 44%, showing that Americans have continued to enjoy a comfortable lifestyle during this time.[12]

5. Economic Development

Between 1970 and 2018, the US economy grew by 275%. A 2011 EPA study shows that the 1990 CAAAs have yielded benefits that exceeded costs by more than 30-to-1[10] and has saved $2 trillion.[8] Additionally, the economic welfare of American households was found to be better with post-1990 programs than without them. These improvements are believed to be a result of fewer air pollution-related illnesses, along with less money spent on medical treatments and fewer missed work days.

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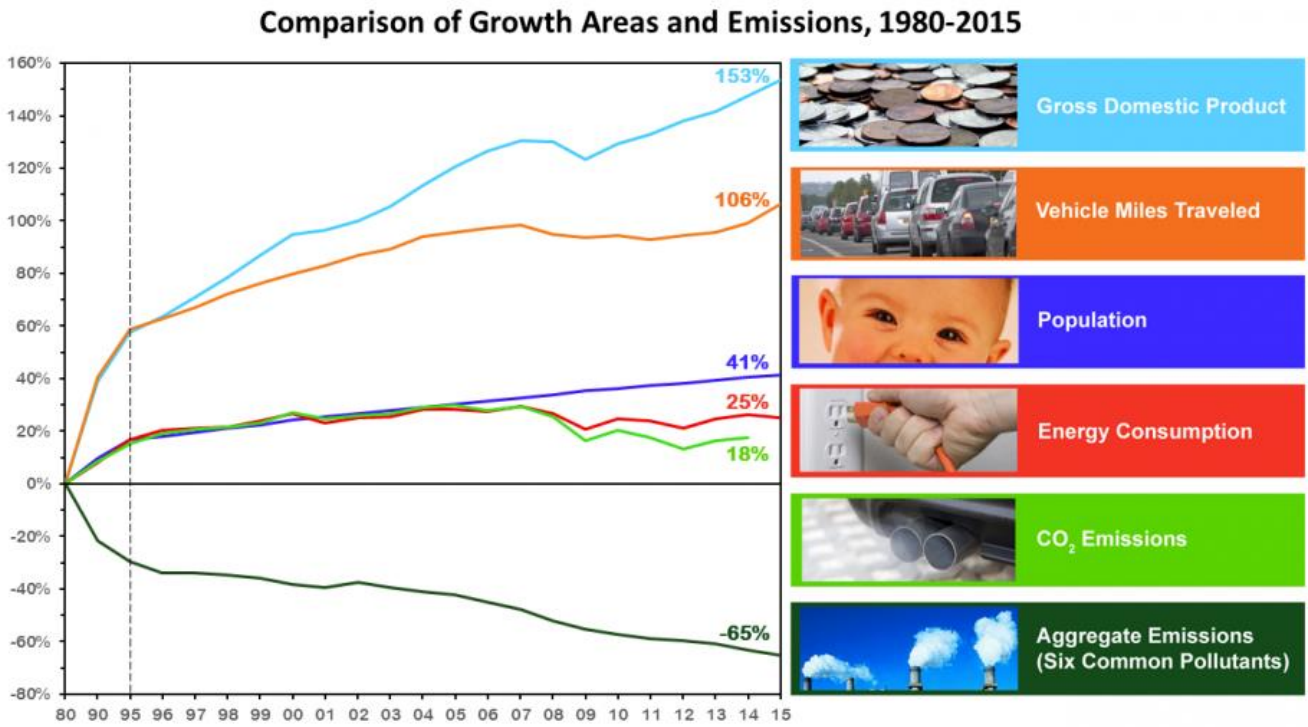
[9] Bowe, B., Xie, Y., Yan, Y., & Al-Aly, Z. (2019). Burden of Cause-Specific Mortality Associated With PM2.5 Air Pollution in the United States. *JAMA Network Open*, *2*(11), e1915834. https://doi.org/10.1001/jamanetworkopen.2019.15834

[10] U.S. Environmental Protection Agency. (2019, July 15). Benefits and Costs of the Clean Air Act 1990-2020, the Second Prospective Study. Retrieved from https://www.epa.gov/clean-air-act-overview/benefits-and-costs-clean-air-act-1990-2020-second-prospective-study

[11] Gauderman WJ, Urman R, Avol E, Berhane K, McConnell R, Rappaport E, Chang R, Lurmann F, Gilliland F. (2015). Association of improved air quality with lung development in children. *New England Journal of Medicine 2015 Mar 5; 372(10):905-13.*

[12] "State of the Air 2019, 20th Anniversary", *American Lung Association*, https://www.lung.org/our-initiatives/healthy-air/sota/ Accessed 8/14/19



(Table from https://www.epa.gov/transportation-air-pollution-and-climate-change/accomplishments-and-success-air-pollution-transportation)

While the CAA has demonstrated tremendous success, this white paper cites many studies that demonstrate the clear link between clean air and public health. There are many challenges that remain in the field of air quality, as seen in the sections below.

Purpose

As stated in the paragraph above, the work for clean air must continue. The American Lung Association's "State of the Air 2019" found that more cities had high days of ozone and short-term particulate concentrations from 2015-2017 than from 2014-2016.[13] Further, the years 2015-2017 ranked as the hottest years on record globally. Evidence was also found of spikes in ozone and particulate concentrations during this time. In all, around 43.3% of the US population lives in counties that have unhealthy levels of ozone and/or particulates. This is equivalent to 141.1 million people, which is an increase from the 133.9 million in 2018 and the 125 million in 2017 that lived

[13] "State of the Air 2019, 20th Anniversary", *American Lung Association*, https://www.lung.org/our-initiatives/healthy-air/sota/ Accessed 8/14/19

in these areas. Worldwide, air pollution causes 7 million early deaths annually, more than AIDS, diabetes, and traffic accidents combined.[14]

As the earth's climate changes, increases in air pollution are expected to occur. Recently, 74 medical and public health groups warned of a "health emergency" due to climate change.[15] One reason for this is that increased temperatures will lead to higher ozone levels because the rate of the chemical reaction that drives ozone formation is increased by warmer temperatures. Higher humidity levels could also lead to higher levels of PM, as formation as a secondary pollutant. Overall higher temperatures and higher levels of precipitation in some areas will lead to higher pollen counts and to mold outbreaks, which will impact people with allergies and affect indoor air quality (IAQ). Areas experiencing drought conditions will also experience more frequent and larger wildfire activity. Wildfires have been increasingly problematic in the Western US, with growing impacts on Tribal air quality (see the 2019 STAR, Section 2.2).

IAQ is increasingly a concern for many people as hot, wet weather conditions lead to higher pollen counts and increased mold growth. Larger and more frequent wildfire activity also has impacts on IAQ, even as people try to spend more time indoors to escape wildfire smoke.

Additionally, in recent months the EPA has issued or given advance notice of many proposed changes in policies related to air emissions that do not give the appropriate consideration to scientific studies. Attempts have been made to undermine or ignore robust, peer reviewed studies that clearly show links between ambient air pollution and health problems. Some of these studies have been used in the field of public health for decades and are very strongly supported by the underlying science. One purpose of this paper is to cite these studies supporting the links between air pollution and public health so that Tribes can have a resource for responding to EPA policy proposals that fall short of the mark concerning the protection of public health. Recent air quality concerns related to the COVID-19 pandemic indicate the importance of air quality research (see section 9 under Health Impacts from Air Pollution).

There has also been a recent attempt by the EPA to change the manner in which costs and benefits associated with various environmental policies are calculated. This paper will attempt to provide Tribes with scientifically strong ways to fully demonstrate the benefits of clean air.

[14] *Health Effects Institute*, (2018). "State of Global Air 2018, Boston, Massachusetts", p. 3, Retrieved August 14, 2019 from https://www.stateofglobalair.org/sites/default/files/soga-2018-report.pdf

[15] Climate Health Action, US Call to Action on Climate, Health, and Equity: a policy action agenda. https://climatehealthaction.org/cta/climate-health-equity-policy/ Accessed 07/24/2019

Holistic Methods and Traditional Knowledges

Tribal governments take a great interest in environmental protection partly due to the poor health outcomes of many of their Tribal members. For instance, the US Department of Health and Human Services has found that American Indians and Alaska Natives (AI/ANs) have an infant death rate that is 60% higher than the rate for Caucasians.[16] AI/ANs also experience a rate of diabetes that is twice as high as for Caucasians, as well as disproportionately high death rates from unintentional injuries and suicide.[16] The tuberculosis rate in 2012 for AI/ANs was 6.3%, compared with 0.8% for the white population. Further, Native people struggle with cultural barriers, geographic isolations, food insecurity, inadequate sewage disposal, and low incomes. While not Native-specific, a study performed in Duluth, Minnesota, showed that residents in low-income zip codes have a life expectancy eleven years lower than residents from more affluent zip codes in the same city. [17]

Tribal people, as a rule, take a more holistic approach to the interaction between health and the environment than Western cultures do. In the eyes of many Native people, the health of natural resources and the environment are inseparable from the health of the people. This is due to the subsistence lifestyle that many Native people lead, as well as their commitment to maintaining cultural practices such as hunting, fishing, and gathering. Contaminants in natural resources can find their way into the bodies of the people consuming those resources. But AI/ANs also see the links between participating in meaningful, healthy activities and physical wellbeing. For example, the Fond du Lac Band of Lake Superior Chippewa recently co-authored a Health Impact Assessment focused on wild rice that highlighted several themes linking wild rice to the health of the Fond du Lac people, including cultural identity, social relations, health, physical activity, and economic considerations.[18]

In contrast, the typical cost/benefit analyses performed by governmental agencies in the US do not recognize costs or benefits that are less tangible than deaths caused directly by a pollutant and direct costs of pollution controls. Nor do these analyses study how, for example, a decrease in a readily available healthy food source can lead to the substitution of less healthy foods, and the results this can have on obesity rates, diabetes, and other diseases.

[16] U.S. Department of Health and Human Services Office of Minority Health. (2019, July 15) Retrieved from https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=3&lvlid=62

[17] St. Louis County, Minnesota, Public Health and Human Services (2016). *St. Louis County Health Status Report.* Retrieved from https://www.stlouiscountymn.gov/Portals/0/Library/Dept/Public%20Health%20and%20Human%20Services/SLC-Health-Status-Report.pdf

[18] Fond du Lac Band of Lake Superior Chippewa. (2019, July 12). Expanding the Narrative of Tribal Health: The Effects of Wild Rice Water Quality Rule Changes on Tribal Health. Retrieved from http://www.fdlrez.com/RM/downloads/WQSHIA.pdf

Likewise, most US studies of impacts of pollutants on lung function do not go beyond immediate causes of disease or death to look at secondary impacts, for example how inactivity on poor air quality days leads to reduced physical fitness.

While this paper focuses on published, peer reviewed scientific research, traditional knowledge can provide an important enhancement to the understanding of Tribal and Indigenous perspectives of their connection to the environment, environmental impacts, and changes over time. It is critical that any agency/state, researcher, or individual who seeks to engage with Tribes or Tribal Knowledge Holders on any topic abide by the two principles of "Cause No Harm" and "Free, Prior, and Informed Consent." These principles are described in detail in the paper, *Guidelines for Considering Traditional Knowledges in Climate Change Initiatives*, and in essence serve to protect Tribal and Indigenous People and foster the sharing of knowledge in an "equitable and productive relationship."[19]

Health Impacts from Air Pollution

1. *Respiratory/Pulmonary*

Studies on the impacts to the respiratory system from both indoor and ambient air pollution are some of the most widespread and well-established studies conducted. Asthma, COPD (chronic obstructive pulmonary disease), and lung cancer have all been shown to either be exacerbated by, or have an increased risk due to, exposure to air pollution, as evidenced below. Furthermore, climate change is leading to an increase in the same respiratory issues.[20]

a. Asthma

Due to the rapid development of the respiratory system both *in utero* and during early childhood, children and adolescents are more susceptible than adults to developing asthma or other respiratory conditions related to air pollution.[21] Multiple studies show that exposure to key environmental pollutants such as PM and other ambient air pollutants can damage the development of the respiratory system,[22] exacerbate allergic inflammation in the lungs,[23] and lead to reduced lung

[19] Climate and Traditional Knowledges Workgroup (CTKW). 2014. Guidelines for Considering Traditional Knowledges in Climate Change Initiatives. http://climatetkw.wordpress.com/

[20] D'Amato G, Pawankar R, Vitale C, Lanza M, Molino A, Stanziola A, Sanduzzi A, Vatrella A, D'Amato M. Climate Change and Air Pollution: Effects on Respiratory Allergy. Allergy Asthma Immunol Res. 2016 Sep;8(5):391-395. doi.org/10.4168/aair.2016.8.5.391

[21] Kurt, Ozlem Kar et al. (2016). Pulmonary health effects of air pollution. *Current opinion in pulmonary medicine* vol. 22,2: 138-43. doi:10.1097/MCP.0000000000000248

[22] Martino D, Prescott S. (2011). Epigenetics and prenatal influences on asthma and allergic airways disease. *Chest. 2011 Mar; 139(3):*640-647.

[23] Carosino CM, Bein KJ, Plummer LE, Castañeda AR, Zhao Y, Wexler AS, Pinkerton KEJ. Allergic airway inflammation is differentially exacerbated by daytime and nighttime ultrafine and submicron fine ambient particles: heme oxygenase-1 as an indicator of PM-mediated allergic inflammation. *Journal of Toxicology and Environ Health A.* 2015; *78(4):*254-66.

function in asthmatic children.[24] The development and exacerbation of asthma in children has also been liked to high levels of ozone.[25] Lastly, a study conducted in southern California between 1993 and 2014 demonstrated that decreases in nitrogen dioxide and $PM_{2.5}$ led to significantly lower incidences of children developing asthma.[26]

Studies have also been conducted specifically regarding asthma and AI/AN children. We know that AI/AN children have greater incidence of asthma (approximately 13% compared with 8.6% of children of non-AI/AN descent).[27] Health disparities such as poverty and inadequate access to respiratory care impact AI/AN children with asthma that live on reservations, and environmental challenges such as both indoor and outdoor air pollution compound the problem.[28] More AI/AN people use biomass for heating and cooking than do non-AI/AN people (in fact, 89% of families on the Navajo Nation reservation do), elevating the levels of both $PM_{2.5}$ and PM_{10} in their homes, and contributing to the increased incidence of asthma severity and morbidity.[29]

Climate change is leading to an increase in pollen production and mold spores, as well as a longer duration of pollen seasons and possibly an increase in the allergenicity of pollens, all of which exacerbates asthma.[30, 31] An Australian study showed that particulate matter in the air (which also exacerbates asthma) is increasing in step with temperature increases.[32] The pollution produced from the burning of fossil fuels (such as in power plants and vehicles) negatively affects respiratory defense mechanisms and works in cooperation with specific allergens to worsen asthma.[31]

[24] Ierodiakonou D, Zanobetti A, Coull BA, Melly S, Postma DS, Boezen HM, Vonk JM, Williams PV, Shapiro GG, McKone EF, Hallstrand TS, Koenig JQ, Schildcrout JS, Lumley T, Fuhlbrigge AN, Koutrakis P, Schwartz J, Weiss ST, Gold D. (2016). Ambient air pollution, lung function, and airway responsiveness in asthmatic children. *Childhood Asthma Management Program Research Group. Journal of Allergy and Clinical Immunology 2016 Feb; 137(2):*390-9.

[25] McConnell R, Berhane K, Gilliland F, London SJ, Islam T, Gauderman WJ, Avol E, Margolis HG, Peters JM. (2002). Asthma in exercising children exposed to ozone: a cohort study. *The Lancet. 2002 Feb 2; 359(9304):*386-91.

[26] Garcia E, Berhane KT, Islam T, et al. Association of Changes in Air Quality With Incident Asthma in Children in California, 1993-2014. *JAMA.* 2019;321(19):1906–1915. doi:10.1001/jama.2019.5357

[27] Brim SN, Rudd RA, Funk RH, Callahan DB. Asthma prevalence among US children in underrepresented minority populations: American Indian/Alaska Native, Chinese, Filipino, and Asian Indian. *Pediatrics* 2008; 122:e217–e222.

[28] Lowe, Ashley A., et al. (2018). Environmental Concerns for Children with Asthma on the Navajo Nation. *Annals of the American Thoracic Society*, vol. 15, no. 6, 2018, pp. 745–753., doi:10.1513/annalsats.201708-674ps.

[29] Garcia E, Berhane KT, Islam T, et al. Association of Changes in Air Quality With Incident Asthma in Children in California, 1993-2014. *JAMA.* 2019;321(19):1906–1915. doi:10.1001/jama.2019.5357

[30] Beggs PJ. (2004). Impacts of climate change on aeroallergens: past and future. *Clinical & Experimental Allergy* 34, 1507–13. doi:10.1111/j.1365-2222.2004.02061.x

[31] Lowe, Ashley A., et al. (2018). Environmental Concerns for Children with Asthma on the Navajo Nation. *Annals of the American Thoracic Society*, vol. 15, no. 6, 2018, pp. 745–753., doi:10.1513/annalsats.201708-674ps.

[32] Ren C, Tong S. (2006). Temperature modifies the health effects of particulate matter in Brisbane, Australia. International Journal of Biometeorology: 51: 87–96. doi:10.1007/s00484-006-0054-7

b. Chronic Obstructive Pulmonary Disease (COPD)

Indoor air pollution includes multiple pollutants, including intrusion of ambient air pollution, secondhand smoke, heating and cooking fuels, and volatile organic compounds,[33] all of which can exacerbate COPD. In fact, a study conducted in 2014 demonstrated that when IAQ in the home is improved, the incidence of COPD is decreased.[34] Unfortunately, because warmer temperatures lead to increased concentrations of fine particulate matter and nitrogen dioxide, people with COPD have been shown to have increased breathlessness, cough, and sputum scale scores on warm days.[35]

c. Lung Cancer

Multiple studies have shown the link between exposure to NO_2 and lung cancer,[36, 37, 38] and a meta-analysis from 2015 demonstrated that vehicular emissions of NOx, SO_2, and $PM_{2.5}$ leads to a significant increase in the risk of developing lung cancer.[39]

d. Emphysema

A 2019 study found a link between long-term exposure to air pollutants, especially ozone, and increasing emphysema and worsening lung function.[40] Emphysema is a disease that is usually associated with smoking. In fact, an increase of about three parts per billion of ozone was found to be equivalent to smoking a pack of cigarettes a day for 29 years.

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[33] Kurt, Ozlem Kar et al. (2016). Pulmonary health effects of air pollution. *Current opinion in pulmonary medicine* vol. 22,2: 138-43. doi:10.1097/MCP.0000000000000248

[34] Zhou Y, Zou Y, Li X, Chen S, Zhao Z, He F, Zou W, Luo Q, Li W, Pan Y, Deng X, Wang X, Qiu R, Liu S, Zheng J, Zhong N, Ran P. (2014). Lung function and incidence of chronic obstructive pulmonary disease after improved cooking fuels and kitchen ventilation: a 9-year prospective cohort study. *PLoS Med.* 11(3):e1001621

[35] McCormack, Meredith C., et al. (2016) Respiratory Effects of Indoor Heat and the Interaction with Air Pollution in Chronic Obstructive Pulmonary Disease. *Annals of the American Thoracic Society*, vol. 13, no. 12, pp. 2125–2131., doi:10.1513/annalsats.201605-329oc

[36] Raaschou-Nielsen O, Andersen ZJ, Beelen R, Samoli E, Stafoggia M, Weinmayr G, Hoffmann B, Fischer P, Nieuwenhuijsen MJ, Brunekreef B, Xun WW, Katsouyanni K, Dimakopoulou K, Sommar J, Forsberg B, Modig L, Oudin A, Oftedal B, Schwarze PE, Nafstad P, De Faire U, Pedersen NL, Ostenson CG, Fratiglioni L, Penell J, Korek M, Pershagen G, Eriksen KT, Sørensen M, Tjønneland A, Ellermann T, Eeftens M, Peeters PH, Meliefste K, Wang M, Bueno-de-Mesquita B, Key TJ, de Hoogh K, Concin H, Nagel G, Vilier A, Grioni S, Krogh V, Tsai MY, Ricceri F, Sacerdote C, Galassi C, Migliore E, Ranzi A, Cesaroni G, Badaloni C, Forastiere F, Tamayo I, Amiano P, Dorronsoro M, Trichopoulou A, Bamia C, Vineis P, Hoek G. (2013). Air pollution and lung cancer incidence in 17 European cohorts: prospective analyses from the European Study of Cohorts for Air Pollution Effects (ESCAPE).
Lancet Oncology; 14(9):813-22

[37] Villeneuve PJ, Jerrett M, Brenner D, Su J, Chen H, McLaughlin JR. (2014). A case-control study of long-term exposure to ambient volatile organic compounds and lung cancer in Toronto, Ontario, Canada. Villeneuve PJ, Jerrett M, Brenner D, Su J, Chen H, McLaughlin JR; *American Journal of Epidemiology;* 179(4):443-51

[38] Cesaroni G, Badaloni C, Gariazzo C, Stafoggia M, Sozzi R, Davoli M, Forastiere F. (2013). Long-term exposure to urban air pollution and mortality in a cohort of more than a million adults in Rome. *Environmental Health Perspective;* 121(3):324-31

[39] Chen G, Wan X, Yang G, Zou X. (2015). Traffic-related air pollution and lung cancer: A meta-analysis. *Thoracic Cancer.* 6(3):307-18

[40] Wang, Meng, Carrie Pistenmaa Aaron, Jaime Madrigano, et al. (2019). Association Between Long-Term Exposure to Ambient Air Pollution and Change in Quantitatively Assessed Emphysema and Lung Function. *Journal of the American Medical Association*; 2019;332(6):546-556. doi:10.1001/jama.2019.10255

(Graphic from https://www.who.int/airpollution/infographics/en/)

2. Cardiovascular

A number of seminal studies have found links between air pollution and heart disease. A 1993 study[41] suggests that fine particulates, either acting alone or with other air pollutants, contributes to excess mortality in certain US cities. A 2002 study[42] found that long-term exposure to combustion-related fine particulates is an important risk factor for cardiopulmonary and lung cancer mortality. A 2015[43] study found that higher levels of pollution have been associated with higher mortality rates for cardio-pulmonary or respiratory causes.

More recently, a study published in *The Lancet* in 2016 found that long-term exposure to fine particulate and traffic-related concentrations is linked to cardiovascular risk. The pollutant concentrations in the study are found commonly around the world, and showed an association with progression in coronary calcification, consistent with acceleration of atherosclerosis, which is a

[41] Dockery DW, Pope CA, 3rd, Xu X, et al. (1993). An association between air pollution and mortality in six U.S. cities. *New England Journal of Medicine*; 329:1753-9

[42] Pope CA, 3rd, Burnett RT, Thun MJ, et al. (2002). Lung cancer, cardiopulmonary mortality, and long-term exposure to fine particulate air pollution. *Journal of the American Medical Association*; 287:1132-41.

[43] Simoni M, Baldacci S, Maio S, et al. Adverse effects of outdoor pollution in the elderly. (2015). *Journal of Thoracic Disease*; 7:34-45

build-up of fatty deposits on the inner lining of the arteries.[44] Another 2016 study[45] states that ambient particulate matter is strongly associated with increased cardiovascular disease such as myocardial infarction, cardiac arrhythmias, ischemic stroke, vascular dysfunction, hypertension, and atherosclerosis.

3. Neurological and Brain Development and Cognition

There is ample science-based evidence that exposure to air pollutants can increase inflammation in the brains of young children, leading to cognitive deficits and the presence of proteins characteristic to the development of Alzheimer's disease.[46]

In a study published on August 31, 2018,[47] the National Academy of Sciences found that long term exposure to air pollution impedes cognitive performance in both verbal and math tests, with the effects being more pronounced as people age, especially for men and for the less educated. These results are important because cognitive decline or impairment are risk factors for the development of Alzheimer's disease and other forms of dementia in the elderly. Pollutants identified in the study include PM, SO_2, and NO_2. The mechanism by which brain function is impacted is not yet well understood, although the pollutants could reach the brain through the bloodstream. A more recent, longitudinal study (November 20, 2019) on women in their 70s and 80s, again provided evidence of the connection between $PM_{2.5}$ and "early decline of immediate free recall/new learning…which is indicative of increased Alzheimer's disease risk."[48]

The link between lead exposure and impaired brain development has long been established. However, new research has suggested that impairment starts at levels that were once thought to be safe, and that no safe level of exposure exists during human development.[49] Also, recent research now helps to show the mechanism by which lead alters new cells in the brain.[50]

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[44] Kaufman, Joel, Sara D. Adar, R. Graham Barr, Matthew Budoff, Gregory L. Burke, and Cynthia L. Curl, et al. (2016). Association between air pollution and coronary artery calcification within six metropolitan areas in the USE (the Multi-Ethnic Study of Atherosclerosis and Air Pollution): a longitudinal cohort study. *The Lancet*, Volume 388, Issue 10045, P696-704

[45] Yixing Du, Xiaohan Xu, Ming Chu, Yan Guo, Junhong Wang. (2016). Air particulate matter and cardiovascular disease: the epidemiological, biomedical and clinical evidence. *Journal of Thoracic Disease*. 8(1): E8–E19. doi: 10.3978/j.issn.2072-1439.2015.11.37PMCID: PMC4740122

[46] Brockmeyer, Sam, and Amedeio D'Angiulli (2016). "How air pollution alters brain development: the role of neuroinflammation", *Translational Neuroscience.* doi: 10,1515/tnsci-2016-005

[47] Zhang Xin. (2018). The impact of exposure to air pollution on cognitive performance. *Proceedings of the National Academy of Sciences of the United States of America*. 115 (37) 9193-9197.

[48] Younan, D., Petkus, A. J., Widaman, K. F., Wang, X., Casanova, R., Espeland, M. A., Gatz, M., Henderson, V. W., Manson, J. E., Rapp, S. R., Sachs, B. C., Serre, M. L., Gaussoin, S. A., Barnard, R., Saldana, S., Vizuete, W., Beavers, D. P., Salinas, J. A., Chui, H. C., … Chen, J. (2019). Particulate matter and episodic memory decline mediated by early neuroanatomic biomarkers of Alzheimer's disease. *Brain*, *143*(1), 289-302. https://doi.org/10.1093/brain/awz348

[49] Senut, Marie-Claude, Pablo Cingolani, Arko Sen, Adele Kruger, Asra Shaik, Helmut Hirsch, Steven T Suhr, Douglas Ruden. (2012). Epigenetics of early-life lead exposure and effects on brain development. *Epigenomics*. 4(6): 665-674 doi: 10.2217/epi.12.58

[50] Stansfield, KH, JR Pilsner, Q Lu, TR Guilarte. (2012). Dysregulation of BDNF-TrkB signaling in developing a hippocampal neurons by Pb(2+): implications for an environmental basis of neurodevelopmental disorders. *Toxicological Science*. doi: 10.1093/toxsci/kfs090

Likewise, the links between mercury exposure and neurological problems has long been well-established. A report by the National Research Council at the National Academy of Sciences also lists these endpoints: poor performance on neurobehavioral tests, especially in tests of attention, fine-motor function, language, visual-spatial abilities, and verbal memory.[51] This is especially worrisome to AI/ANs, as Tribal members consume more fish than the general population because of their tendency toward a subsistence lifestyle, which the EPA has acknowledged in past publications.[52] Specifically, the EPA concluded that exposure among specific subpopulations, including some Native Americans, may be more than twice as great as that experienced by the average US population.[53]

4. Reproductive

Scientists believe there may be a connection between air pollution and both fertility rates and increased risk of miscarriage.[54] A study published in October of 2019[55] quantified the link between air pollution and a specific type of miscarriage, known as a "silent miscarriage" or a "missed abortion in the first trimester." This type of miscarriage can be particularly traumatic because there are no physical signs of the miscarriage, leading to the assumption that the fetus is developing normally. Related studies also outlined the correlation of air pollution to adverse perinatal events, such as preterm delivery,[56] low birth weight,[57] and small size for gestational age.[58]

A 2018 Popular Science article describes how a year after eight coal and oil-fired power plants in California closed, fertility rates in the surrounding areas went up. The resulting research "provided a clear demonstration of an emergency public health problem – the link between poor air quality

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[51] Committee on the Toxicological Effects of Methylmercury, Board on Environmental Studies and Toxicology, Commission on Life Sciences, National Research Council. (2000). *Toxicological Effects of Methylmercury,* National Academy Press, Washington, D.C.

[52] 76 Fed. Reg. at 24,978 citing (U.S. EPA 1997 Mercury Study Report to Congress, Volume IV, page 7–2).

[53] Minnesota Department of Health, Environmental Public Health Tracking. (2015, September). Economic Burden of the Environment on Children's Disease: the Cost of Prenatal Mercury Exposure in Minnesota. Retrieved from https://www.health.state.mn.us/communities/environment/tracking/docs/mercuryburdenreport2015.pdf

[54] Vizcaino, Miguel A. Checa, Mireia Gonzalez-Comadran, Benedicte Jacquimin. (2016). Outdoor air pollution and human infertility: a systematic review. *American Society for Reproductive Medicine*, Volume 106, Issue 4, Pages 897-903.e1

[55] Zhang, L., Liu, W., Hou, K., Lin, J., Zhou, C., Tong, X., Wang, Z., Wang, Y., Jiang, Y., Wang, Z., Zheng, Y., Lan, Y., Liu, S., Ni, R., Liu, M., & Zhu, P. (2019). Air pollution-induced missed abortion risk for pregnancies. *Nature Sustainability*, 2(11), 1011-1017. https://doi.org/10.1038/s41893-019-0387-y

[56] Dadvand, P., Parker, J., Bell, M.L., Bonzini, M., Brauer, M., Darrow, L.A. et al. (2013). Maternal exposure to particulate air pollution and term birth weight: a multi-country evaluation of effect and heterogeneity. *Environmental Health Perspective*; 121: 267–373

[57] Estarlich, M., Ballester, F., Aguilera, I., Fernández-Somoano, A., Lertxundi, A., Llop, S. et al. (2011). Residential exposure to outdoor air pollution during pregnancy and anthropometric measures at birth in a multicenter cohort in Spain. *Environmental Health Perspective*; 119: 1333–1338

[58] Candela, S., Ranzi, A., Bonvicini, L., Baldacchini, F., Marzaroli, P., Evangelista, A. et al. (2013). Air pollution from incinerators and reproductive outcomes: a multisite study. *Epidemiology*; 24: 863–870

and reduced fertility."[59] A study from June 2018 found that women who lived closer to major roadways had lower birth success rates when undergoing IVF.[60]

A study conducted in 2016 reviewed the available literature regarding exposures to environmental air pollutants and fertility or reproductive health using the PubMed database over the period from January 1, 2000, to April 1, 2016.[61] The article referenced over 100 separate studies and concluded, "Both animal and human epidemiological studies support the idea that air pollutants cause defects during gametogenesis leading to a drop in reproductive capacities in exposed populations. Air quality has an impact on overall health as well as on the reproductive function, so increased awareness of environmental protection issues is needed among the general public and the authorities." The study found links between air pollutants and pregnancy rates, IVF success rates, sperm quality, and female reproductive parameters.

5. Endocrine (diabetes)

A 2004 study linked polycyclic aromatic hydrocarbons and heavy metals, which are found in particulate matter from diesel exhaust,[62] to hormone levels. A 2018 study[63] concluded that, "there is a considerable body of evidence documenting the presence of EDCs *[endocrine disrupting compounds]* in both outdoor and indoor air, that EDCs are entering human tissues, and that EDCs are impacting on human endocrine health," although the study states that EDCs from air pollutants are likely only one pathway of exposure.

In another 2018 study,[64] researchers gathered data on pollutants from unconventional oil and gas extraction (UOG) (i.e., hydraulic fracturing) with regard to human health. The study attempted to prioritize future studies in this area. Researchers found that UOG air emissions included 21 pollutants that have been shown to have endocrine disrupting activity, and recommended further study of these emissions.

6. Psychological

A 2012 study discovered that children who were exposed to higher levels of polycyclic aromatic hydrocarbons while in utero were more likely to experience attention problems and symptoms of

[59] Westman, Nicole. Air pollution might make it harder to get pregnant. November 14, 2018, Popular Science.
[60] Gaskins, Audrey J., Jaime E. Hart, Lidia Minguez-Alarcon, Jorge E. Chavarro, Francine Laden, Brent A. Coull, Jennifer B. Ford, Irene Souter, Russ Hauser. (2018). Residential proximity to major roadways and traffic in relation to outcomes of in vitro fertilization. *Environmental International*, Volume 115, Page 239-246
[61] Carre, Julie, Nicolas Gatimel, Jessika Moreau, Jean Parinaud, Roger Leandri. (2017). Does air pollution play a role in infertility?: a systematic review. *Environmental Health* 16, Article number: 82
[62] Takeda K, Tsukue N, Yoshida S .(2004). Endocrine-disrupting activity of chemicals in diesel exhaust and diesel exhaust particles. *Environmental Science*; 195:11:33-45
[63] Darbre, Philippa D. (2018). Overview of air pollution and endocrine disorders. *International journal of general medicine* vol. 11 191-207. 23, doi:10.2147/IJGM.S102230
[64] Bolden, Ashley L., Kim Schultz, Katherine E. Pelch, and Carol F. Kwiatkowski. (2018). Exploring the endocrine activity of air pollutants associated with unconventional oil and gas extraction, *Environmental Health* 17, Article number: 26

anxiety and depression,[65] and that adolescents who are exposed to $PM_{2.5}$ have greater "physiological reactivity to social stressors."[66] A 2018 study found links between air pollution and psychological health.[67] Specifically, exposure to higher $PM_{2.5}$ levels are associated with increased psychological distress, even when adjusted for demographic, socioeconomic, and health controls. Another 2018 study[68] found positive associations between long-term exposure to PM_{10}, NO_2, and CO, and individuals' mental health status. "Mental health status" was described as one of the following conditions: subjective stress, poor quality of life, depressiveness, depression diagnosis by doctor, and suicidal ideation. A 2018 Chinese study concludes that, "The most severe responses to air pollution were psychologically-associated behavioral problems, indicating a serious threat to mental health, and behavioral vulnerability and variations induced by stress, depression, anxiety, shortened tempers, mood swings, and unpleasant moods."[69] Similarly, a study conducted in the US and Denmark in 2019 found that poor air quality is linked with higher rates of depression and bipolar disorder.[70]

Researchers have derived data-driven evidence that exposure to $PM_{2.5}$ and ozone lead to an increase in violent crimes, particularly assaults and aggressive behavior. This same study demonstrates "that a 10% reduction in daily $PM_{2.5}$ and ozone could save $1.4 billion in crime costs per year."[71]

7. Uranium/Radionuclides

Radioactive materials occur in nature, but can be considered air pollutants due to their role in causing a wide range of human health problems. Tribal members are exposed to natural radiation primarily through exposure to radon and uranium, which is often found on Tribal lands in the southwestern US as waste from mining operations. Radon occurs in areas all across the US and has been shown to cause lung cancer,[72] while uranium can cause a host of health issues, including lung cancer, bone cancer, high blood pressure, kidney disease, and problems with kidney,

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[65] Perera, Frederica, et al. (2012). Prenatal Polycyclic Aromatic Hydrocarbon (PAH) Exposure and Child Behavior at Age 6-7 Years *Environmental Health Perspectives* Vol. 120, No. 6, https?doi.org/10.1289/ehp/1104315

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reproductive, and autoimmune functions.[73] The impacts of radon and uranium are multiplied in the bodies of smokers.[74] Since the rate of smoking in AI/AN people is higher than in other ethnic groups, involuntary exposure to radon or radionuclides is more harmful to Native people.

8. Mortality

An August 2019 study published in the New England Journal of Medicine highlights links between daily mortality associated with increased levels of $PM_{-2.5}$.[75] The study found that just a 10 ug per cubic meter increase can cause significant increases in mortality. Higher annual mean temperatures seem to increase this impact. The data reinforce a link between mortality and particulate concentrations established previously.[76, 77]

9. Connection to COVID-19

In late 2019, COVID-19 (caused by the coronavirus) emerged in China as a novel virus. It quickly spread to pandemic proportions, and by March of 2020, the United States was suffering from widespread cases of COVID-19, spanning from asymptomatic and mild cases, to extremely severe cases leading to death. A study published April 5, 2020, (and updated on April 24, 2020,)[78] found that long term exposure to even a very slight increase (1 μg/m3) in PM2.5 levels was associated with an 8% increase in the death rate from COVID-19. A study of air quality in Italy's Northern provinces of Lombardy and Emilia Romagna also found a correlation between COVID-19 mortality rates and high levels of pollution. The researchers investigated the role of low air quality in the two provinces becoming hotspots, concluding that, "The high level of pollution in northern Italy should be considered an additional co-factor of the high level of lethality recorded in that area." [79]

Because COVID-19 is currently an emerging threat and its connection to air pollution is not fully understood, additional studies are needed.

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10. Other areas of health impacts

A study in the United Kingdom (UK) showed a correlation between air pollution and the development of glaucoma, an eye condition that can cause blindness if left untreated. Neuroinflammation, which is a known response to air pollution, "has been identified as a mechanism underlying glaucoma." In this study, data from 111,370 UK residents was analyzed, which included information on air quality and ophthalmic measures. The results showed that "resident[s] in areas with higher $PM_{2.5}$ concentration were more likely to report a diagnosis of glaucoma."[80]

Conclusions

In providing this supplement to the 2019 Status of Tribal Air Report, the NTAA identified more than fifty seminal studies that clearly link air pollutants to human health issues, and those are just a small percentage of the peer-reviewed, scientific studies in this field. The number of studies that clearly reinforce the science behind these links increased since the time of publication, and many were added to this 2020 update. Regulatory changes that are intended to weaken environmental and public health protections standards go against both Tribal lifeways and the intent of both the EPA and the Clean Air Act. The science behind these studies is robust and credible. It is NTAA's goal that by identifying some of the latest human health studies, Tribes can use this white paper as a foundation to be better prepared to comment on regulatory proposals from the EPA and other agencies. In the interests of citing the latest research and data, this white paper will be reviewed and updated annually along with the STAR.

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Appendix D: Permit Categories on Reservations

The Clean Air Act establishes emissions-related permitting programs, the pre-construction permit programs under Title I of the Act, and the operating permit program under Title V of the Act. EPA delegates their implementation to local air agencies. Tribes may implement their permit programs once approved by EPA either under the Tribal New Source Review rule or under the part 71 rule for Title V sources (Federal Implementation Plan) or by taking delegation of one or both of the Federal Implementation Plans (FIPs). Where a Tribe does not implement these programs, EPA issues the permits to the sources as appropriate.

Terms

NSR – New Source Review – NSR is a Clean Air Act program (aka, the "preconstruction air permitting program") that requires industrial facilities to install modern pollution control equipment when they are built or when making a change that increases emissions significantly. The program requires owners or operators to obtain permits before they begin construction.

Tribal New Source Review rule – The Tribal NSR rule is a Federal Implementation Plan (FIP – a plan that is developed by the EPA to federally implement CAA requirements) that establishes the nonattainment NSR and minor NSR permitting programs in Indian country where no EPA-approved Tribal program exists. There are 2 parts – the minor NSR rule and the nonattainment major NSR rule. The permitting authority (either EPA or a Tribe that takes delegation from EPA) reviews the permit application and either grants or denies the permit after a public comment period.

PSD – Prevention of Significant Deterioration – Applicable to new and modified major sources in attainment areas. Regulated pollutants: NAAQS, GHGs, and others (sulfuric acid mist, hydrogen sulfide) – does not include air toxics (mercury, cadmium, benzene, etc.). Has specific requirements - Install Best Available Control Technology (BACT); perform air quality analysis to assess impacts on air quality; perform class I area analysis to assess impacts on national parks/wilderness areas; perform additional impacts analysis; and allow for public involvement. This program can also be delegated to the tribes or implemented through an EPA approved Tribal Program.

FARR – Federal Air Rules for Reservations (applicable in Region 10 only) – A set of air quality regulations that apply to Indian Reservations in Idaho, Oregon, and Washington.

Title V – Permits issued to major sources by the Tribe (CAA part 70) and permits issued by EPA (CAA part 71). These operating permits include all the applicable CAA requirements that apply to a major source and are designed to improve compliance by clarifying what sources must do to control air pollution.

Major Source – Facilities that emit or have the potential to emit pollutants in amounts equal to or greater than the corresponding major source threshold levels. These levels vary by pollutant and/or source category. Major sources must comply with specific emission limits which are generally more stringent in nonattainment areas and if the pollutant is a criterial pollutant or an air toxic.

Minor Source – Facilities that have the potential to emit pollutants in amounts less than the corresponding major source thresholds.

Synthetic Minor Source – Facilities that have the potential to emit pollutants at or above the major source threshold level, but voluntarily accept enforceable limits to keep emissions below the major source thresholds and avoid the major NSR requirements.

Nonattainment Area – Areas of the country that meet or violate air quality standards (NAAQS).

Attainment Area – Areas of the country that have air quality as good as or better than the air quality standards for a given pollutant.

HAP – Hazardous Air Pollutant - Pollutants (toxic air pollutants or air toxics) that are known to cause cancer and other serious health impacts. There are approximately 187 toxic air pollutants.

TAS – Treatment as a State

The Tribal Authority Rule authorizes EPA to treat eligible federally recognized Indian tribes in the same manner as a state for implementing and managing certain environmental programs.

TAS Eligibility – A Tribe must meet certain criteria to be eligible for TAS. The Tribe must be federally recognized; have a governing body; have appropriate authority to regulate air quality (includes exterior boundaries of the reservation); and be capable of carrying out the functions of the program.

Administrative TAS – Examples include 105 grants, 107 designations, 126/505 notifications, 319 monitoring, permit review, redesignations, etc.

Regulatory TAS – Examples include Tribal Implementation Plan (TIP), delegation of a FIP, regional haze, or permit program, etc.

Note: TAS is not required for all programs, e.g., program development, monitoring.

Appendix E: List of 151 NTAA Member Tribes by EPA Regions

Region 1 (4 Tribes)

- Houlton Band of Maliseet Indians
- The Mohegan Tribe
- Passamaquody Tribe at Pleasant Point
- Penobscot Indian Nation

Region 2 (3 Tribes)

- Saint Regis Band of Mohawk Indians
- Seneca Nation of Indians
- Shinnecock Indian Tribe

Region 3 (1 Tribe)

- Chickahominy Indian Tribe

Region 4 (5 Tribes)

- Catawba Indian Nation
- Eastern Band of Cherokee
- Miccosukee Indian Tribe of Florida
- Mississippi Band of Choctaw Indians
- Poarch Band of Creek India

Region 5 (21 Tribes)

- Bad River Band of Lake Superior Tribe of Chippewa Indians
- Bois Forte Band of Chippewa
- Fond du Lac Band of Lake Superior Chippewa
- Forest County Potawatomi Community
- Grand Portage Band of Lake Superior Chippewa
- Grand Traverse Band of Ottawa & Chippewa Indians
- Keweenaw Bay Indian Community
- Lac du Flambeau Band of Lake Superior Chippewa Indians
- Leech Lake Band of Ojibwe
- Little Traverse Bay Bands of Odawa Indians
- Lower Sioux Indian Community
- Match-E-Be-Nash-She-Wish Band of Pottawatomi Indians of Michigan
- Menominee Indian Tribe of Wisconsin
- Oneida Tribe of Indians of Wisconsin
- Red Cliff Band of Lake Superior Chippewa Indians
- Red Lake Band of Chippewa Indians
- Saginaw Chippewa Indian Tribe of Michigan
- Sault Tribe of Chippewa Indians
- Shakopee Mdewakanton Sioux Community
- St. Croix Chippewa Indian of Wisconsin
- White Earth Nation

Region 6 (23 Tribes)

- Caddo Nation of Oklahoma
- Cherokee Nation of Oklahoma
- Choctaw Nation of Oklahoma
- Citizen Potawatomi Nation
- Delaware Nation of Oklahoma
- Fort Sill Apache Tribe of Oklahoma

- Iowa Tribe of Oklahoma
- Modoc Tribe of Oklahoma
- Muscogee (Creek) Nation
- Ohkay Owingeh
- Pueblo of Acoma
- Pueblo of Jemez
- Pueblo of Laguna
- Pueblo of Pojoaque
- Pueblo of Santa Ana
- Pueblo of Santo Domingo
- Pueblo of Zia
- Pueblo of Zuni
- Quapaw Tribe Of Oklahoma
- Sac and Fox Nation
- Seminole Nation of Oklahoma
- Taos Pueblo
- United Keetoowah Band of Cherokee Indians in Oklahoma

Region 7 (7 Tribes)

- Kickapoo Tribe in Kansas
- Ponca Tribe of Nebraska
- Prairie Band Potawatomi Nation
- Sac & Fox Tribe of the Mississippi in Iowa/Meskwaki
- Sac & Fox Nation of Missouri in Kansas and Nebraska
- Santee Sioux Nation
- Winnebago Tribe of Nebraska

Region 8 (10 Tribes)

- Confederated Salish & Kootenai Tribes
- Fort Belknap Indian Community
- Fort Peck Tribes of Assiniboine & Sioux Tribe
- Northern Cheyenne Tribe
- Northwestern Band of Shoshone Nation
- Sisseton Wahpeton Oyate
- Southern Ute Indian Tribe
- Standing Rock Sioux Tribe
- Ute Indian Tribe
- Ute Mountain Ute Tribe

Region 9 (38 Tribes)

- Augustine Band of Cahuilla Indians
- Ak-Chin Indian Community
- Big Pine Paiute Tribe of the Owens Valley
- Bishop Paiute Tribe
- Blue Lake Rancheria
- Cahto Tribe of the Laytonville Rancheria
- Cahuilla Band of Indians
- Campo Band of Mission Indians
- Colorado River Indian Tribes
- Coyote Valley Band of Pomo Indians
- Elk Valley Rancheria
- Fort Independence Tribe of Paiute Indians
- Gila River Indian Community
- Habematolel Pomo of Upper Lake
- Hoopa Valley Tribe
- Hualapai Tribe
- Kletsel Dehe Wintun Nation
- La Posta Band of Mission Indians
- Lone Pine Paiute Shoshone Reservation
- Los Coyotes Band of Cahuilla Cupeno Indians
- Manzanita Band of the Kumeyaay Nation

- Moapa Band of Paiutes
- Morongo Band of Mission Indians
- Pala Band of Mission Indians
- Pechanga Band of Luiseno Indians
- Pyramid Lake Paiute Tribe
- Robinson Rancheria of Pomo Indians
- Round Valley Indian Tribes
- Santa Ynez Band of Chumash Indians
- Soboba Band of Luiseno Indians
- Susanville Indian Rancheria
- Tejon Indian Tribe
- Tohono O'odham Nation
- Utu Utu Gwaitu Paiute Tribe
- Walker River Paiute Tribe
- Washoe Tribe of Nevada and California
- White Mountain Apache Tribe
- Yavapai-Apache Nation

Region 10 (14 Tribes)

- Coeur d'Alene Tribe
- Confederated Tribes of Warm Springs
- Confederated Tribes of the Colville Reservation
- Confederated Tribes of the Coos, Lower Umpqua & Siuslaw Indians
- Kootenai Tribe of Idaho
- Makah Indian Tribe
- Nez Perce Tribe
- Nisqually Tribe
- Quinault Indian Nation
- Samish Indian Nation
- Shoshone-Bannock Tribes
- Spokane Tribe
- Tulalip Tribes
- Yakama Nation

Alaska (25 Tribes and Villages)

- Aleknagik Traditional Council
- Alutiiq Tribe of Old Harbor
- Bristol Bay Native Association
- Chickaloon Village Traditional Council
- Craig Tribal Association
- Inupiat Community of the Arctic Slope
- Klawock Cooperative Association
- Native Village of Aniak
- Native Village of Buckland
- Native Village of Kiana
- Native Village of Kivalina (IRA)
- Native Village of Kluti-Kaah
- Native Village of Kwinhagak
- Native Village of Noatak
- Native Village of Nuiqsut
- Native Village of Selawik
- Native Village of Shungnak
- Native Village of Tyonek
- Noorvik Native Community
- Nulato Tribal Council
- Orutsararmuit Native Council
- Qawalangin Tribe of Unalaska
- Seldovia Village Tribe
- Ugashik Traditional Village
- Wrangell Cooperative Association

Tribal Consortia as Associate NTAA member

- Inter-Tribal Council of Arizona

Appendix F: EPA OAR and OITA Organizational Charts

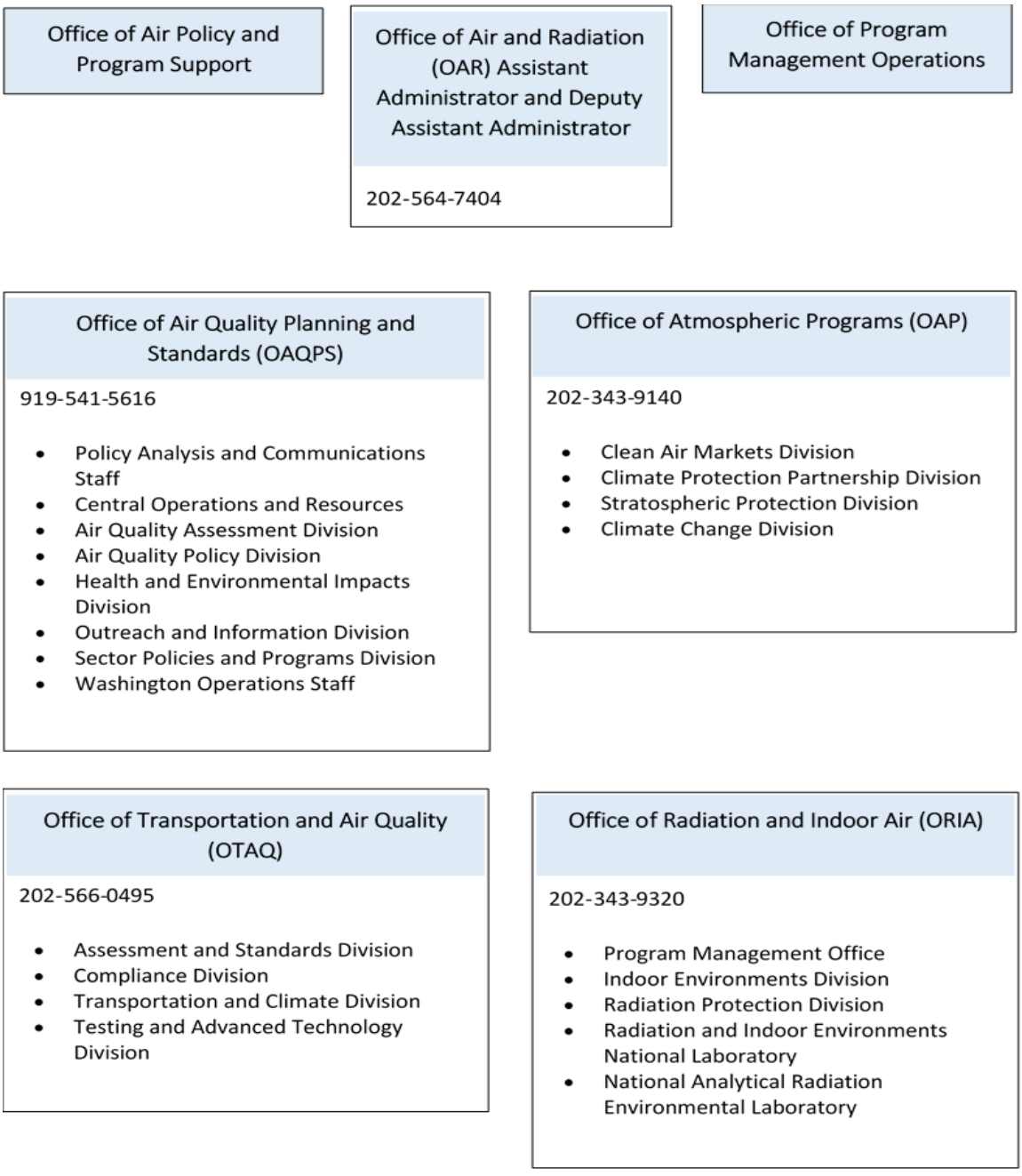

Figure 5 EPA OAR Organizational Chart

Additional information about the EPA Office of Air and Radiation can be found at: https://www.epa.gov/aboutepa/about-office-air-and-radiation-oar.

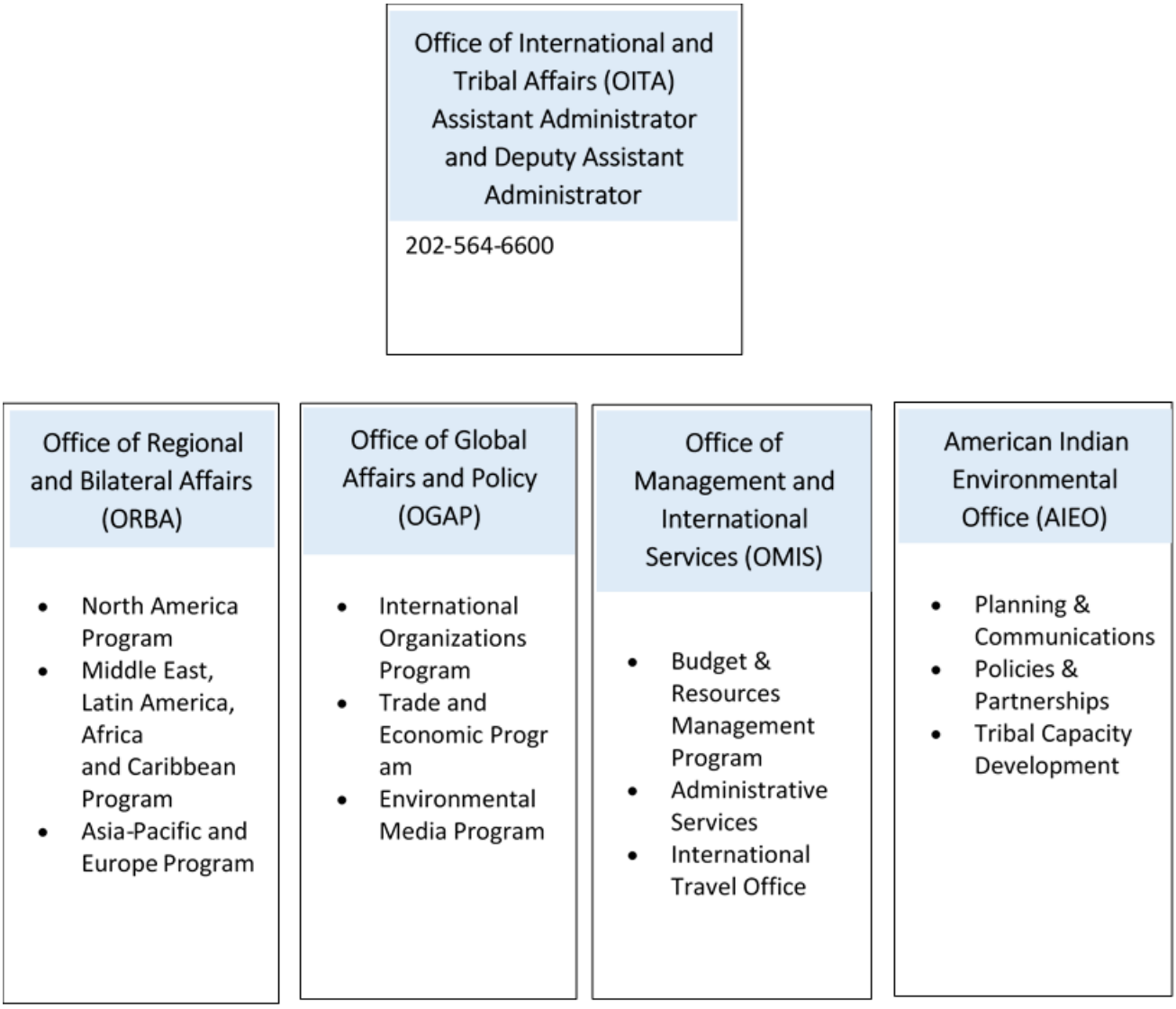

Figure 6 EPA OITA Organizational Chart

Additional information about the EPA Office of International and Tribal Affairs can be found at: https://www.epa.gov/aboutepa/about-office-international-and-tribal-affairs-oita.

Appendix G: NTAA Comment Letters on EPA and Federal Agencies' Actions May 2019 – May 2020

EPA's Supplemental Notice of Proposed Rulemaking: Strengthening Transparency in Regulatory Science EPA–HQ–OA–2018– 0259 https://www.regulations.gov/document?D=EPA-HQ-OA-2018-0259-9322

NTAA submitted a request for comment period extension on March 25, 2020. A 30 day extension was granted. NTAA submitted a formal comment letter on May 18, 2020: https://secureservercdn.net/198.71.233.47/7vv.611.myftpupload.com/wp-content/uploads/2020/05/5.18.20.NTAAs-Comment-Letter-on-Transparency-in-Science-SNPRM.pdf

The above SNPRM was a supplement to the following: Strengthening Transparency in Regulatory Science EPA-HQ-OAR-2018-0259. NTAA submitted a formal comment letter on 08/13/2018: https://www.ntaatribalair.org/wp-content/uploads/2020/01/8.13.18.NTAA-comment-letter-on-transparency-in-science-proposed-rule.EPA-HQ-OAR-2018-0259.pdf

The White House Council on Environmental Quality's Notice of Proposed Rulemaking: Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act Docket ID No. CEQ-2019-0003 https://www.whitehouse.gov/ceq/nepa-modernization/

NTAA submitted a formal comment letter on March 10, 2020: https://7vv.611.myftpupload.com/wp-content/uploads/2020/03/NTAA-Comment-Letter-to-CEQ-on-NEPA.pdf

EPA's Advance Notice of Proposed Rule: Cleaner Trucks Initiative EPA-HQ-OAR-2019-0055 https://www.govinfo.gov/content/pkg/FR-2020-01-21/pdf/2020-00542.pdf

NTAA submitted a comment period extension request on January 22, 2020. This request was denied on February 19, 2020. NTAA submitted a formal comment letter on February 20, 2020: https://7vv.611.myftpupload.com/wp-content/uploads/2020/02/2-20-2020-NTAA-CTI-Cmmnt-LTR.pdf

EPA's Modernizing the Administrative Exhaustion Requirement for Permitting Decisions and Streamlining Procedures for Permit Appeals Proposed Rule EPA–HQ–OGC–2019– 0406 https://www.regulations.gov/docketBrowser?rpp=50&so=DESC&sb=postedDate&po=0&dct=PS&D=EPA-HQ-OGC-2019-0406

NTAA submitted a deadline extension request on December 11, 2019 (no response received). The Fond du Lac Band of Lake Superior Chippewa submitted a comment letter with NTAA's assistance on December 30, 2019. https://www.regulations.gov/contentStreamer?documentId=EPA-HQ-OGC-2019-0406-0028&attachmentNumber=2&contentType=pdf

EPA's Proposed Policy Amendments 2012 and 2016 New Source Performance Standards for the Oil and Natural Gas Industry EPA-HQ-OAR-2017-0757

NTAA submitted a formal comment letter on November 25, 2019.
https://www.ntaatribalair.org/wp-content/uploads/2019/12/11.25.19-NTAA-Comment-Letter-on-NSPS-for-ONG.pdf

EPA's Proposed NESHAP for Taconite Iron Ore Processing Residual Risk and Technology Review EPA-HQ-OAR-2017-0664

NTAA submitted a formal comment letter on November 12, 2019
https://www.ntaatribalair.org/wp-content/uploads/2019/11/NTAA-Comment-Letter-on-NESHAP-for-Taconite.pdf

EPA's Reclassification of Major Sources as Area Sources Under Section 112 of the CAA (also known as the "Once In Always In") Policy Change EPA-HQ-OAR-2019-0282

NTAA submitted a formal comment letter to EPA on September 24, 2019.
https://www.ntaatribalair.org/wp-content/uploads/2019/12/NTAA-Comment-Letter-Once-In-Always-In.pdf

U.S. Senate Request for Climate Change Policy Recommendations
NTAA submitted both a White Paper Response and an Executive Summary to the Senate on September 13, 2019.
https://www.ntaatribalair.org/wp-content/uploads/2019/12/NTAA-Executive-Summary-and-White-Paper-Response-to-Senate-Request-for-CC-Policy-Recommendations.pdf

White House CEQ's Draft National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions

NTAA submitted a formal comment letter on August 26, 2019.
https://www.ntaatribalair.org/wp-content/uploads/2019/12/NTAA-Letter-on-CEQ-draft-Guidance.pdf

EPA's FY 2020-2021 National Program Guidance for Office of Air and Radiation (OAR)

NTAA submitted a formal comment letter on May 3, 2019.
https://www.ntaatribalair.org/wp-content/uploads/2019/12/NTAA-NPM-Guidance-FY20.21-Comment-Letter.pdf

EPA's formal responses to NTAA and others can be found here:
https://www.epa.gov/sites/production/files/2019-06/documents/fy-20-21-oar-npg-response.pdf

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