NATIONAL TRIBAL WATER COUNCIL

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PFAS: An Injustice to Indian Country

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On May 12, 2022, Page Hingst, Tribal Response Program Manager, Santee Sioux Nation, made a presentation during the Tribal Environment Summit, hosted by EPA Region 6. Page's presentation focused on the story of per- and polyfluoroalkyl substances (PFAS), the "forever chemicals" that are suspected to be contaminating lands, vegetation, water bodies, aquatic species, wildlife, and drinking water to name a few. PFAS substances are a diverse group of human-made chemicals used in a wide range of consumer and industrial products.

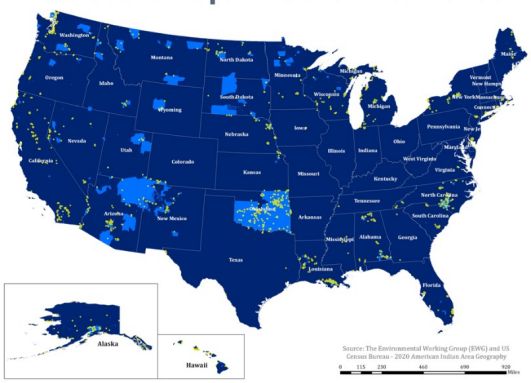
PFAS Statistics

Currently, there are 140 confirmed PFAS sites within a 5-mile radius of tribal lands. There are 2,815 sites that are suspected of PFAS contamination.[6] These suspected sites include landfills, military bases, and industrial and wastewater treatment plants.

There are 326 tribal reservations throughout the United States[8] and 58 of those reservations are within six (6) miles of an active military installation. Eighteen out of 450 military installations have confirmed PFAS contamination. Six out of the 18 installations have over 100,000 parts per trillion (ppt) of PFAS in their groundwater[11], which exceeds the EPA Lifetime Health Advisory of .02 ppt for PFOS and .004 ppt for PFOA.[16]

Nineteen percent of all tribes are within six (6) miles of one (1) PFAS source, while 10% are adjacent to at least two (2) or more PFAS sources. Eighty percent of Tribes are within 10 miles of at least one (1) PFAS source, whereas 70% are within 10 miles of at least two (2) or more sources.[1]

Interactive Map: PFAS and Tribal Lands



Source: Environmental Working Group

Evolution of PFAS

PFAS substances were discovered accidentally in 1938 when DuPont was trying to make Freon refrigerants. The polymer known as PTFE (polytetrafluoroethylene) was hard to break and could withstand extreme temperatures. It is virtually indestructible and now we know it as Teflon.

In the 1940s, during World War II, a U.S. Army general

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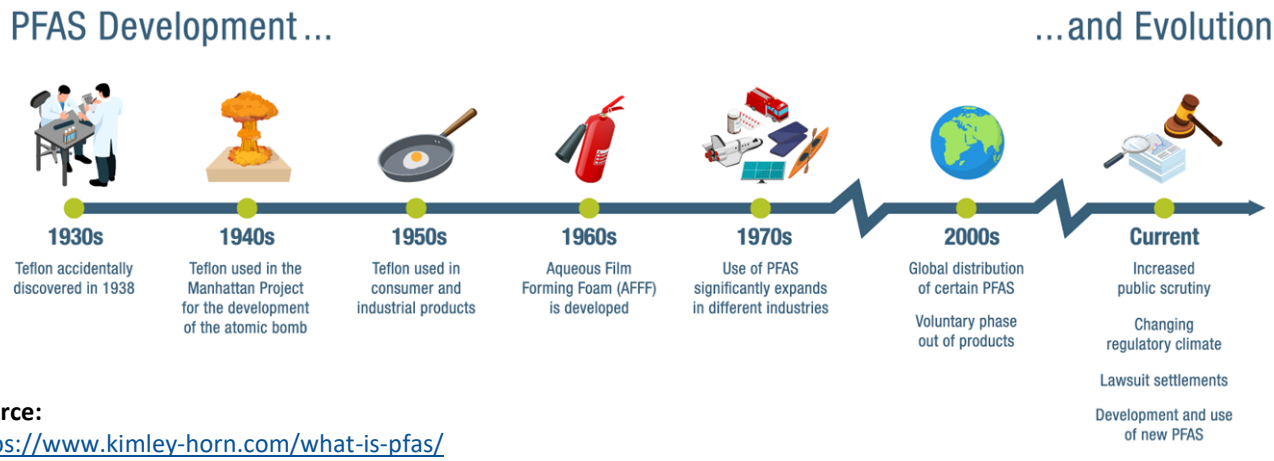
learned of PTFE and commissioned DuPont to start a plant that would manufacture PTFE, so that it could be used in seals and gaskets of pipes in atomic bombs. After the war ended, the need for PTFE dwindled, but DuPont continued to use PTFE in products such as Teflon pans. Another company, 3M, also started to use fluorocarbon synthetic polymers by preventing water and liquids from getting into fabrics.

By the 1950s, Teflon had become a household name. DuPont was manufacturing two (2) million pounds (more than 900 tons) of Teflon per year.

toxicity in humans, but did not stop manufacturing PFAS. In 1976, 3M found PFOA in their workers' blood, and in 1981, found that PFOA causes rare birth defects in rats. That same year, DuPont workers were giving birth and having similar rare birth defects. Subsequently, DuPont removed all women from the Teflon unit, but did not give the women a reason why they were removed, and did not share any of the data with the EPA. They continued to produce and manufacture PFAS. Then in 1984, DuPont found PFOA in a community drinking water system, but did not disclose the results to the public or the EPA. Still, they continued to produce and manufacture PFAS. By



Source:
https://www.kimley-horn.com/what-is-pfas/

Beginning in the 1960s, the Naval Research Laboratory in cooperation with 3M, began conducting research on PFAS for use in Aqueous Film Forming Foam (AFFF), a fire suppressant used to fight flammable liquid fires. Since AFFF worked so good in suppressing fires, the Navy received a patent in 1966 and 3M began manufacturing it for the military.

Consequently, from the 1950s on, PFAS was used in almost every industry until the 2000s, when PFAS contamination became widespread and industries started phasing out these chemicals. Now, we are dealing with the aftermath of the contaminations. Research is now being conducted on the impacts of PFAS contamination. Moreover, lawsuits and settlements with industries, such as 3M and DuPont that manufactured PFAS are many.

Industrial Research Secrets

As we know now, PFAS was accidentally discovered by 3M in 1938. By 1961, DuPont had been manufacturing Teflon for at least 10 years, and they conducted several studies and found evidence of liver toxicity in animals. The following year, in 1962, they discovered evidence of

1987, 3M discovered widespread global contamination of PFAS while looking for uncontaminated blood samples to compare to their workers. All the while, they continued to produce and manufacture PFAS until the 2000s.[1]

PFAS and Health Affects

The Centers for Disease Control and Prevention (CDC) estimates that 97% of all humans have some level of PFAS in their bodies. Since the phasing out of the long-chain PFAS, blood levels of PFOA and PFOS have been decreasing from 60%-80%.[2] However, since the exposure has already occurred, people are at risk for certain health and environmental effects. Some of the health effects are risks of obesity, increased cholesterol levels, suppressed response to vaccines, certain cancers and decreased fertility. Also, PFAS has been linked to kidney disease and diabetes. [3,7]

PFAS is an Injustice to Tribal Nations

It is known that Tribal Nations are often burdened with environmental pollution. PFAS contamination is no exception. In her presentation, Page discussed PFAS as an injustice to Tribal Nations, and shared how PFAS

contamination potentially impacts tribal economies, subsistence foods, cultural and traditional practices, water/sanitation system inadequacies, health disparities, tribal nations as disadvantaged communities and the lack of research and testing associated with PFAS on tribal lands.

Water/Sanitation System Inadequacies

Water is sacred to Indigenous and Tribal Nations. Therefore, protecting the water is a must. Unfortunately, many Indigenous and Tribal Nations do not have running water to their homes for drinking water or domestic use. Over 48% of tribal homes lack basic access to safe drinking water.[16] Water delivery systems are underdeveloped and underfunded in Indian Country. Many tribal water systems are in disrepair due to lack of technically-trained tribal members who can maintain water systems properly. There are six (6) million tribal members in the U.S. Of the six (6) million, 1,382,000 tribal members are served by 852 tribally owned public water systems (PWS). The remaining 4,618,000 tribal members that are not served by a tribally-owned PWS rely on unregulated water sources, such as private wells, rainwater harvesting, spring water, delivered water, rivers, lakes and livestock water points.[9] These unregulated water sources pose a high risk of exposure to PFAS due to no testing or monitoring of PFAS.

Another shortfall on tribal lands is the lack of sufficient sanitation systems. Most reservations have unlined landfills, which has been known to be a source of PFAS contamination. Uncontained dumpsites are prevalent on tribal lands and there is no research to determine if they are a source of PFAS contamination, but like landfills, one could assume there is potential risk of exposure.

Health Disparities

According to the Indian Health Service (IHS)[9], tribal people have long experienced lower health status when compared with other Americans. For example, the life expectancy for tribal members is 5.5 years less than all other races in the U.S. Tribal people have higher rates of lead poisoning, anemia, diabetes, kidney disease, liver disease and certain cancers. PFAS substances in the blood can exacerbate these conditions. PFAS has been linked to an increased risk for diabetes and chronic kidney disease. Further, PFAS has also been linked to having a synergistic effect with lead, meaning they interact together to produce an effect that is greater than the cumulative effect that those processes produce individually. PFAS has been known to change liver enzymes, which can lead to increased risk for liver disease.[3] PFAS can increase risk for certain health conditions that many tribal people may already have, thereby exacerbating health conditions.

Cultural and Traditional Practices

Tribes are more vulnerable to pollution than other disadvantaged groups because of their reliance on their environment for cultural practices, subsistence foods, economies, and overall livelihoods. Tribal reservations have long been targeted as locations to dump industrial waste, which have polluted rivers, lakes and tribal lands across the country. Tribes were and are exploited by private companies, hoping to take advantage of the chronic unemployment, pervasive poverty, rural locations, and the sovereign status of Tribal Nations.

The pollution vulnerability and environmental degradation have impacted Tribes through their medicinal, traditional and ceremonial practices. Environmental degradation has led to the loss of traditional cultural practices that rely on local plants and animals that tribal communities hold sacred. PFAS has been known to be up-taken by certain plant species. Currently, there is no known research on tribal culturally sensitive plants; however, it is safe to assume that there is a very high probability of these plants up-taking PFAS and becoming a route of exposure to tribal members. Traditional practices such as basket weaving could be a route of exposure as basket weavers place the reed in their mouths while weaving baskets. During ceremonial practices, tribal members have been known to drink unregulated water from a historical source increasing their risk for potential exposure to PFAS.

Direct and Indirect Exposures

There are direct and indirect exposure routes to tribal communities and are congruent with routes of exposure for PFAS. Routes of exposure include inhalation of PFAS through the air, direct soil exposure, exposure through sweat lodge and ceremonies, processing of animals, wildlife, gardening, irrigation, etc. It is extremely concerning that PFAS has been known to bio magnify up the food chain. Macroinvertebrates have been found to contain PFAS, which are then eaten by the fish, the fish is eaten by the bird and all the while PFAS can bio magnify. Deer may drink PFAS polluted water, and people eat the deer. Thus, Tribes face numerous routes of potential PFAS exposure.

Source: National Tribal Toxics Council (2018)

Tribal Economies

As sovereign nations, Tribes are responsible for their economies and revenue generating ventures for their communities. In an already struggling economy, PFAS contamination would have a detrimental effect on tribal communities. Tribal Nations experiencing PFAS contamination could potentially lose important revenue needed to keep their communities going. One Tribe in the northwest had such an experience. The PWS that was serving their casino tested with very high levels of PFAS. They closed the casino for a few days to locate an alternate water system. Loss of revenue from casinos can be in the millions of dollars and threaten tribal economies and communities. Tribes also rely on farming, recreational hunting and fishing. These are sources of revenue for Tribes and can have severe consequences for Tribes if they are to be disrupted.

The PFAS remediation costs for the states and the Department of Defense are in the millions of dollars.[15] PFAS remediation for Tribes would be very expensive and difficult as most Tribes do not have the resources to pay for costly remediation. It is the same with water system repair. As previously mentioned, 48% of tribal households do not have access to clean, safe drinking water. Now add PFAS into the mix, and the situation becomes ten times worse. In addition, testing for PFAS is very expensive, estimated cost is $400-$600 per sample. Therefore, testing on tribal lands is infrequent due to the cost of PFAS sampling and analysis.

Subsistence Foods

Food security and food sovereignty are extremely important for Tribal Nations. Potential PFAS contamination would jeopardize subsistence foods and/or agricultural crops. Recently, there has been an increase number of fish consumption advisories for PFAS contamination. Most of the advisories are posted in states surrounding the Great Lakes region, such as Wisconsin, Minnesota, Michigan, Indiana, and New York. These fish consumption advisories threaten the Tribes that rely on fish for subsistence food. Tribal members are less likely to be aware of fish advisories or the risks associated with eating contaminated fish compared to the general population. One site in Michigan was so highly contaminated that a deer consumption advisory was posted within a 5-mile radius of the contaminated site. Studies have suggested to limit wild game consumption and not eat the organs, since PFAS tends to accumulate in the organs. There is insufficient research on culturally sensitive plants up-taking PFAS, and potential contaminated subsistence foods would be detrimental to Tribes.

Research/Testing Inefficiencies

PFAS research and testing for Tribal Nations is profoundly lacking. One of the major sources of PFAS exposure for Tribes are from cultural and traditional resources. Tribes are underrepresented in research and testing. For example, a study conducted by the PFAS Project Lab Group (Group), which hasn't been published yet, spoke about the underrepresentation of Tribes. The Group stated that there is approximately six (6) million tribal members in the U.S., and approximately one (1) million are served by PWS operated by the Tribes. Under the Unregulated Contaminant Monitoring Rule 2012 (UCMR3), only 22% of the tribal population served by PWS with Native American owner type had their water tested for PFAS. Because these numbers only account for tribally owned PWS, there is a probability that a higher percentage of the general tribal population has had their water tested, but the data is lacking. While 71% of the non-tribal population served by PWS had their water tested in UCMR3 for PFAS, this only equates to approximately 68% of the total U.S. population, since some people are on private wells or not served by PWS. Under UCMR5 (2021), 64% of PWS owned by Native Americans were tested while 92% of non-tribal owned PWS were tested.[10] This illustrates that Tribes are definitely underrepresented in testing and research.

Moving Forward: What should we do?

Based on the information Page presented in her presentation, one could say that PFAS is an injustice to

PFAS: An Injustice to Indian Country (*continued*)

Tribes. So what should we do? There needs to be adequate funding for infrastructure development and maintenance, so all Tribes have access to clean and safe drinking water. It is a human right to have safe and clean drinking water. Adequate sanitation systems need to be constructed, so that solid waste can be properly managed to prevent PFAS leaching into the groundwater or leaching into nearby bodies of water. As Page mentioned in her presentation, Tribes lack resources to remediate contaminated sites. Most of the pollution or contamination on tribal reservations were not made by tribal members, yet Tribes are ultimately responsible for cleaning up the contamination. This is where manufacturer responsibility needs to come into play.

Going forward, manufacturers of PFAS should be responsible for the cleanup of contaminated sites. Manufacturers have made billions of dollars off their products that are now posing tremendous risks to the very survival of Tribes. Research and testing are paramount so Tribes are aware of the extent of potential contaminations, and Tribes can adequately protect their people, culture, traditional practices and subsistence foods. Outreach materials for Tribes are needed so that Tribal Nations can inform their communities of the risks and exposure routes of PFAS. The PFAS Project Lab Group, in conjunction with the Tribal PFAS Working Group, will be developing outreach materials this summer for tribal communities.

There is more to be done, and if you have any solutions or ideas on how to effectively inform tribal communities, improve sampling and testing, effectively remediate, etc., we would like to hear your ideas. You may visit the **Tribal PFAS Working Group's Facebook** page at https://www.facebook.com/TribalPFASWorkGroup for additional information.

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Grant Opportunity: BIA's Tribal Climate Resilience and Ocean and Coastal Management Planning for Federally Recognized Tribes and Authorized Tribal Organizations

Deadline: July 6, 2022

The Bureau of Indian Affairs (BIA), Branch of Tribal Climate Resilience solicits proposals from Federally recognized Tribes and authorized Tribal organizations to receive awards to support 1) Tribal climate resilience planning and strategy implementation and 2) ocean and coastal management planning. The program will provide funding for projects that support Tribal climate resilience as Tribes incorporate science. The deadline to submit a proposal is July 6, 2022. More information on the solicitation may be accessed at: Fiscal Year 2022 Bureau of Indian Affairs Branch of Tribal Climate Resilience Solicitation (bia.gov)

NTWC Membership Recruitment for Region 8 and At-Large Representative

The National Tribal Water Council is a technical and scientific body established to advocate for the best interests of federally-recognized Indian and Alaska Native Tribes in matters pertaining to water. The Council is currently accepting applications from tribal water professionals for two (2) open positions.

Member duties include, but not limited, to:

- Participating in monthly conference calls;
- Attending bi-annual meetings;
- Participating in crafting response documents to policy and/or rule making actions.

At-Large Representative

Deadline: July 15, 2022

Open to tribal water professionals employed by a federally recognized Tribe or tribally-authorized organization in the United States (Regions 1 through 10).

Region 8 Representative

Deadline: August 31, 2022

This position is open to tribal water professionals employed by a federally recognized Tribe or tribally authorized organization from Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming).

We are seeking an individual that is passionate and vocal about tribal water issues. Interested candidates must submit the following: application form, letter of interest, and professional resumé. The Council's membership application information packet may be accessed at NTWC Home - National Tribal Water Council (nau.edu).

To express your interest or obtain more information, please contact Elaine Wilson at elaine.wilson@nau.edu or (480) 452-6774.

Tribal Consultation and Public Comment Opportunities

All consultation materials may be found at: https://tcots.epa.gov

EPA's Climate Adaptation Implementation Plans

Deadline: June 30, 2022

EPA has initiated consultation and coordination with federally recognized tribes to receive input on draft Climate Adaptation Implementation Plans (CAIPs) developed by EPA National Program and Regional offices. When final, the CAIPs will be used to inform EPA's progress toward addressing Agency-wide climate vulnerabilities, strengthening adaptation efforts, and increasing resiliency to the impacts of climate change.

Important documents:

- EPA National Program and Regional Offices Draft Climate Adaptation Implementation Plans
- Office of Water Draft CAIP Overview Document

Feedback is being sought on the nine National Program and ten Region draft CAIPs. In addition to this national process to streamline engagement on the large number of EPA CAIPs, tribes may request government-to-government consultation with any National Program/ Region. Some Regions are providing additional consultation opportunities; these opportunities are noted in the consultation plan.

The deadline to submit comments is June 30,2022. Tribes may submit written comments by email to Lisa Berrios (EPA, OITA/AIEO) at berrios.lisa@epa.gov Consultation materials may be accessed at: https://tcots.epa.gov/ords/tcotspub/f?p=106:5::1535

Proposed Changes to the National Allocation of GAP

Deadline: August 2, 2022

EPA initiated consultation and coordination with federally recognized Tribes to receive input on proposed changes to the national allocation of Indian Environmental General Assistance Program (GAP) funds to tribal and intertribal consortia recipients. The proposed changes to the funding allocation formula, if adopted, will take effect for all GAP awards made with FY 2023 funds.

EPA has scheduled an upcoming webinar and facilitated discussion, see information below:

- Facilitated Discussion with Tribes: July 13, 2022 (3:00-4:30 PM EDT)
  To access the meeting: Join conversation (microsoft.com)

The deadline to submit comments is August 2, 2022. For more information, please visit: https://www.epa.gov/tribal/indian-environmental-general-assistance-program-gap#consultation-gap-guidance

Draft 2022 GAP Guidance

Deadline: August 2, 2022

EPA is initiating consultation and coordination with federally recognized tribes to receive input on the draft 2022 Guidance on the Award and Management of Indian Environmental General Assistance Program Assistance Agreements for Tribes and Intertribal Consortia (2022 GAP Guidance). When final, the 2022 GAP Guidance will replace the 2013 Guidance and will be effective for negotiating and awarding GAP financial assistance agreements.

The deadline to submit comments is August 2, 2022. For more information: https://www.epa.gov/tribal/indian-environmental-general-assistance-program-gap#consultation-gap-guidance

EPA Proposed Clean Water Act Section 401 Water Quality Certification Improvement Rule

Deadline: August 8, 2022

On June 2, 2022, EPA announced the proposed "Clean Water Act Section 401 Water Quality Certification Improvement" rule. The proposal would strengthen the authority of tribes, states, and territories to protect their vital water resources while supporting an efficient, predictable, and workable certification process. EPA held a pre-proposal tribal consultation and coordination period on the rule from June 7, 2021 to September 7, 2021. A copy of the pre-proposal tribal consultation summary is included in the proposed rule docket.

EPA has scheduled an upcoming webinar and facilitated discussion, see information below:

- June 28, 2022 (12:00-2:00 PM EDT) Tribal Listening Session, to register: Section 401 (erg.com)
- July 18, 2022 (Three time options available) Virtual Public Hearing Session, to register: Section 401 (erg.com)

The deadline to submit comments is August 8, 2022. Please submit comments through Docket ID No. EPA-HQ-OW-2022-0128 on using https://www.regulations.gov

Tribal Consultation and Public Comment Opportunities (*continued*)

All consultation materials may be found at: https://tcots.epa.gov

after the proposed rule publishes in the Federal Register. If you are interested in requesting consultation with the Agency on the proposed rule, please contact Emma Maschal at cwa401@epa.gov to make consultation arrangements before the end of the 60-day public comment period. For more information, please visit: Proposed Clean Water Act Section 401 Water Quality Certification Improvement Rule | US EPA

Potential EPA Actions to Increase Tribal Capacity to Maintain and Expand Nonpoint Source Management

Deadline: September 30, 2022

EPA) is initiating consultation and coordination with federally recognized Indian tribes to inform potential EPA actions the Clean Water Act section (§) 319 national Nonpoint Source (NPS) program could take to better support §319-eligible tribes in their efforts to manage NPS pollution.

Section 319 of the Clean Water Act (CWA) authorizes EPA to provide financial assistance to states, territories, and eligible tribes and intertribal consortia to implement EPA-approved nonpoint source (NPS) management programs to prevent or reduce the water quality impacts of NPS pollution. Tribes have communicated to EPA the challenges they face in their efforts to manage NPS pollution.

The deadline to submit comments is September 30, 2022. For comment submission form: https://www.epa.gov/nps/forms/tribal-nonpoint-source-program-consultation. For more information, please visit: https://tcots.epa.gov/ords/tcotspub/f?p=106:5::1457::::

Events and Webinars

Water Resources Research Center 2022 Annual Conference on Arizona's Agricultural Outlook: Water, Climate, and Sustainability
July 12-14, 2022

The hybrid conference, ***Arizona's Agricultural Outlook: Water, Climate, and Sustainability***, will take place July 12-14, 2022 with in-person and virtual options. The agenda reflects the diversity of Arizona agriculture, including large-scale irrigated operations, specialty agriculture, ranching, dairy farming, Tribal farms, and traditional practices. The standard registration for the in-person day is $60. There is free registration for the two partial days of virtual programming (July 13-14), which will be interactive.

Tribal Lands and Environment Forum
August 8-11, 2022

Registration is now open for the upcoming Tribal Lands and Environment Forum. For those wanting to attend in-person, registration fee is $125. For those preferring to attend virtually the cost is $25. You can also apply for a scholarship if you are attending in-person, to help cover some of your travel costs, if necessary. All the details are on the following website: **http://www.nau.edu/tlef2022**

National Association of Wetland Managers: Annual State/Tribal/Federal Coordination Meeting
August 15-19, 2022

The National Association of Wetland Managers' (formerly ASWM) Annual State/Tribal/Federal Coordination Meeting will be held at the National Conservation Training Center (Shepherdstown, WV) from August 15-19, 2022. The purpose of this annual meeting is to support state and tribal wetland program managers, and other wetland professionals as they respond to challenges in the coming year. If circumstances require it, the meeting may be changed to a fully virtual format.

The registration fee is $396 (for members and early rate) and the deadline to register is August 5, 2022. For information on travel scholarships and registration, please visit: https://www.aswm.org/2022-annual-state-tribal-federal-coordination-meeting

EPA WaterSense Webinar Series

To register: https://www.epa.gov/watersense/webinars

- July 13, 2022: Beat the Peak - Using Water Wisely for Commercial Outdoor Space

Events and Webinars (*continued*)

Inter Tribal Council of Arizona, Inc. – National Tribal Water & Wastewater Operator Training & Certification Program

The Inter Tribal Council of Arizona, Inc. National Tribal Water and Wastewater Operator Training and Certification Program is providing live online training. Each course consists of sequential lessons that are provided in a series of live online classes that are 3-hours in length.

Upcoming courses include, but are not limited to, the following:

- Wastewater Treatment Level 2: July 6 - August 12
- Federal SDWA 101 Regulations for Tribal Water Operators: August 1-29

To register, or to view the 2022 training schedule, please visit: https://itcaonline.com/programs/

environmental-quality-programs/tws-tmap/tws-training-events/

EPA Small Drinking Water Systems Webinar Series

To register: https://www.epa.gov/water-research/small-drinking-water-systems-webinar-series

- June 28, 2022: Water Security
- August 29-September 1, 2022: 19th Annual EPA Drinking Water Workshop - Small System Challenges and Solutions

EPA Water Research Webinar Series

To register, please visit: https://www.epa.gov/water-research/water-research-webinar-series

- August 31, 2022: Integrated Approaches in Community Nonpoint Source Nutrient Management

NTWC Members: For more information, visit Meet the Council

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