

Air Quality Partnership with Public Libraries on the Nez Perce Reservation



Johna Boulafentis & Mary Fauci
NW-AirQuest, June 2022

BUILD A MODEL LUNG



MAKE & TAKE KIT!

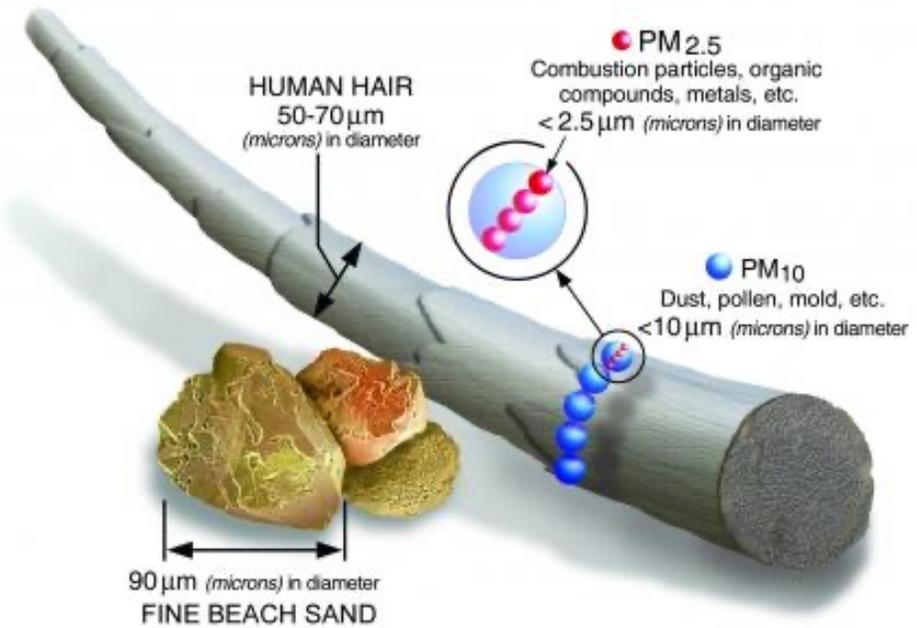
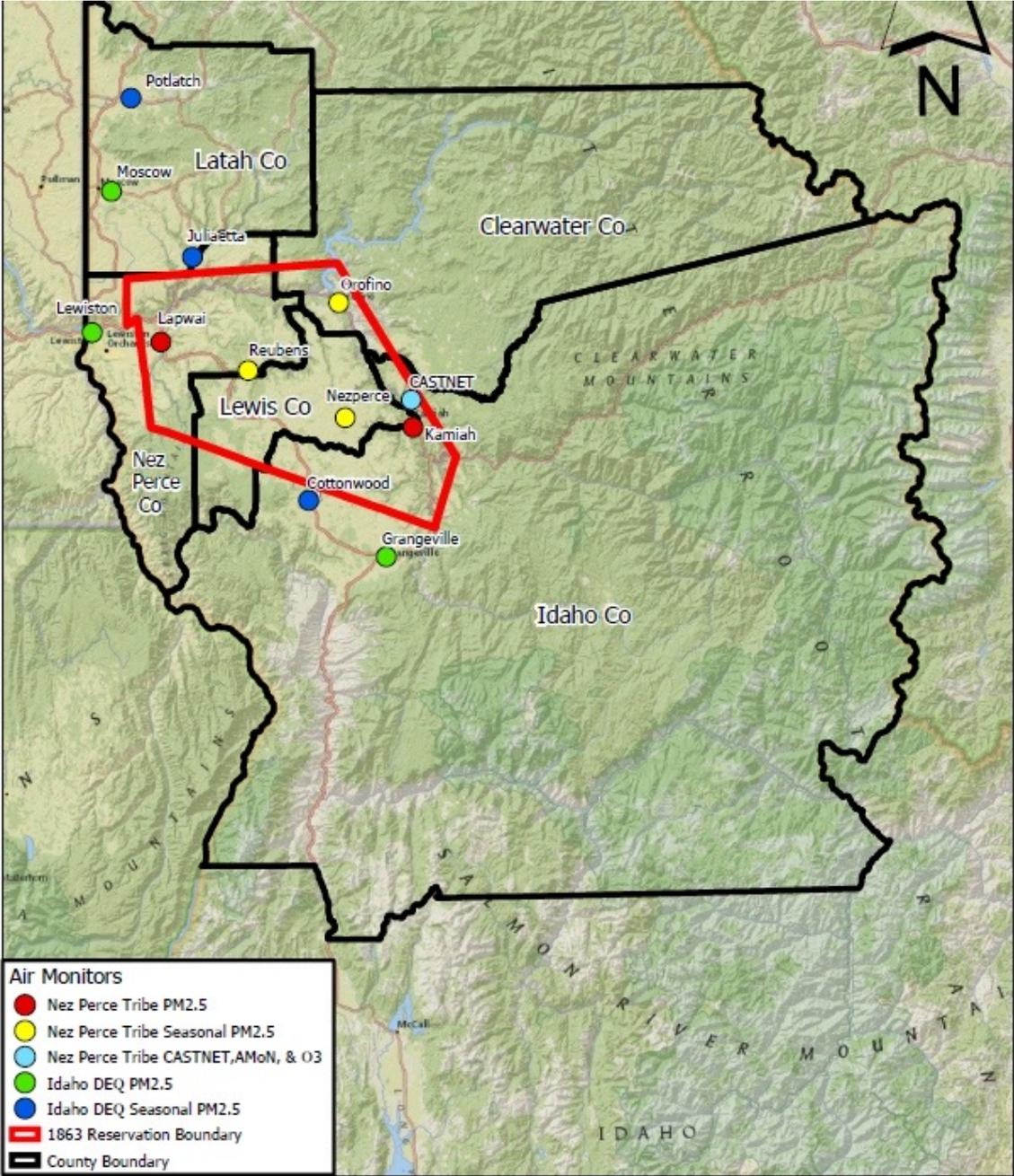
AVAILABLE AT YOUR LOCAL LIBRARY

Build with Josette, AQ Intern
<https://youtu.be/MOIZIZA+Hh4>



Presented by
Nez Perce Tribe ERWM Air Quality Program
Find us on Facebook & Instagram

Ambient Air Monitoring Network



AirNow Fire & Smoke Map: fire.airnow.gov

Johnson Bar Fire: Overlooking Kamiah Valley from Highway 64

August 12, 2014
 PM2.5 = 200 ug/m3
 AQI: Very Unhealthy



September 4, 2014
 PM2.5 = 4 ug/m3
 AQI: Good

Air Quality Advisory Remains in Effect for the Nez Perce Reservation

Date/Time: Friday, September 8, 2017, 10:00am

Description of Air Quality Event: Due to wildfire smoke from regional wildfires, the Air Quality Advisory issued for the Nez Perce Reservation remains in effect. Depending on fire activity and wind, wildfire smoke may move in and out of the area during the day and overnight through the weekend.

Affected Areas: All areas on the Nez Perce Reservation.

Air Quality Index (AQI) Category: Air quality is currently ranging between the "Unhealthy" and "Very Unhealthy" categories of the Air Quality Index. Although air quality is forecasted to improve over the weekend, communities may continue to be impacted by area wildfire smoke. To track regional air quality, visit the Idaho Smoke Info Blog "Air Quality Now" tab for hourly updates. Regional air quality can also be viewed at EPA's AirNow website.

Some areas may be more impacted than others, so please take appropriate precautions. See additional health advisory information and recommended actions below. Call your local air quality agency if you have any questions.

Restrictions: No EPA/IFT burn permits will be approved.

Next Update: Conditions will be reassessed and an air quality update issued by 10:00am, Monday, September 11, 2017.

AQI	Air Quality Category	Health Advisory
0-50	Good	It's a great day to be active outside!
51-100	Moderate	Unusually sensitive people should consider reducing prolonged or heavy outdoor exertion.
101-150	Unhealthy for Sensitive Groups	Sensitive people should reduce prolonged or heavy exertion.
151-200	Unhealthy	Sensitive people should avoid prolonged or heavy outdoor exertion. Everyone else should reduce prolonged or heavy exertion.
201-300	Very Unhealthy	Sensitive people should avoid all physical activity outdoors. Everyone else should avoid prolonged or heavy exertion.
301-500	Hazardous	Everyone should avoid all physical activity outdoors. Sensitive people should remain indoors and keep activity levels low.

Sensitive groups include infants, children, pregnant women, elders, people who have high exposure (those who work, exercise, or spend extensive time outdoors), and those with existing health conditions or chronic diseases like asthma, emphysema, bronchitis, heart disease, COPD or diabetes.

Idaho Smoke Information Blog: id smoke.blogspot.com
 EPA AirNow Website: www.airnow.gov
 Idaho Fire Information Blog: idahofireinfo.com
 Idaho Department of Health and Welfare: [Wildfire Smoke and Your Health](http://WildfireSmokeandYourHealth)
 Idaho Smoke Information Hotline: 1-800-345-1007

If you have questions, please contact:
 Nez Perce Tribe ERMW Air Quality Program
 208-843-0381 | 1-800-720-4288
 Email: airquality@nezperce.org | Website: www.nezperce.org/AirQuality/
 Follow us on Facebook

#SmokeReady



#SmokeReady2021

QÍITINKIN'IX 'IMÁAHINAQ'I

GET YOURSELF READY FOR THE SMOKE

WÉETMET HÉESNU' QÍITIN
DON'T BREATHE SMOKE

IF FITTED AND WORN CORRECTLY, THE N95 MASK FILTERS OUT 95 PERCENT OF PARTICLES LARGER THAN 0.3 MICRONS, SO THEY'RE VERY EFFICIENT WITH KEEPING OUT THE 2.5-MICRON PARTICLES WILDFIRE SMOKE CONTAINS.

LEARN MORE AT airnow.gov

**SUMMER IS HERE!
PREPARE FOR WILDFIRE SMOKE**

QÍITINKIN'IX 'IMÁAHINAQ'I
GET YOURSELF READY FOR THE SMOKE

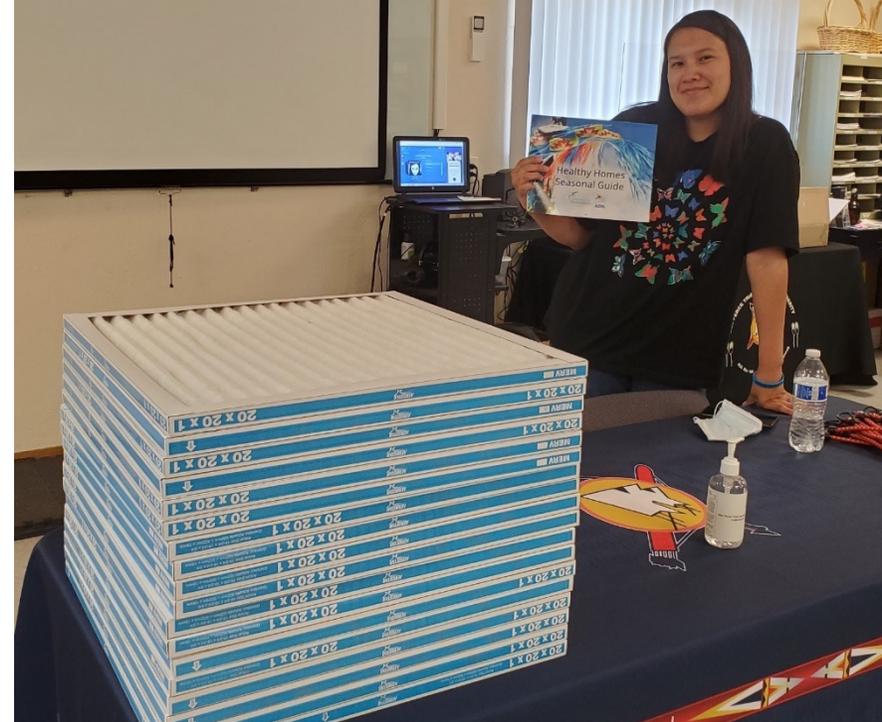
Join the Nez Perce Tribe ERWM Air Quality Program and Housing Authority for a **DIY Box Fan Filter Class!** Filter fans are low cost, simple to make, and help keep the air inside your home clean and healthy.

**JULY 13, 2021 TUESDAY
12PM - 1PM AT LAPWAI HOUSING CLASSROOM**

LUNCH & MATERIALS WILL BE PROVIDED

DIY BOX FAN FILTER CLASS!

To Register Contact at 208.843.2229 or Anna Lawrence annal@nezperce.org



#SmokeReady2021

QÍITINKIN'IX 'IMÁAHINAQ'I

GET YOURSELF READY FOR THE SMOKE

QÍITINWEC'ET 'INÁAHINAQ'IS
I AM READY FOR THE SMOKE

BEING PREPARED FOR FIRE SEASON IS ESPECIALLY IMPORTANT FOR SENSITIVE GROUPS. CHECK WITH YOUR HEALTHCARE PROVIDER ABOUT WHAT YOU SHOULD DO DURING SMOKE EVENTS. HAVE A PLAN TO MANAGE YOUR CONDITION.

LEARN MORE AT airnow.gov

Wildfire Smoke

Be Ready.
Protect yourself.

Idaho Smoke Info Blog
idsmoke.blogspot.com

#SmokeReady2021

QÍITINKIN'IX 'IMÁAHINAQ'I

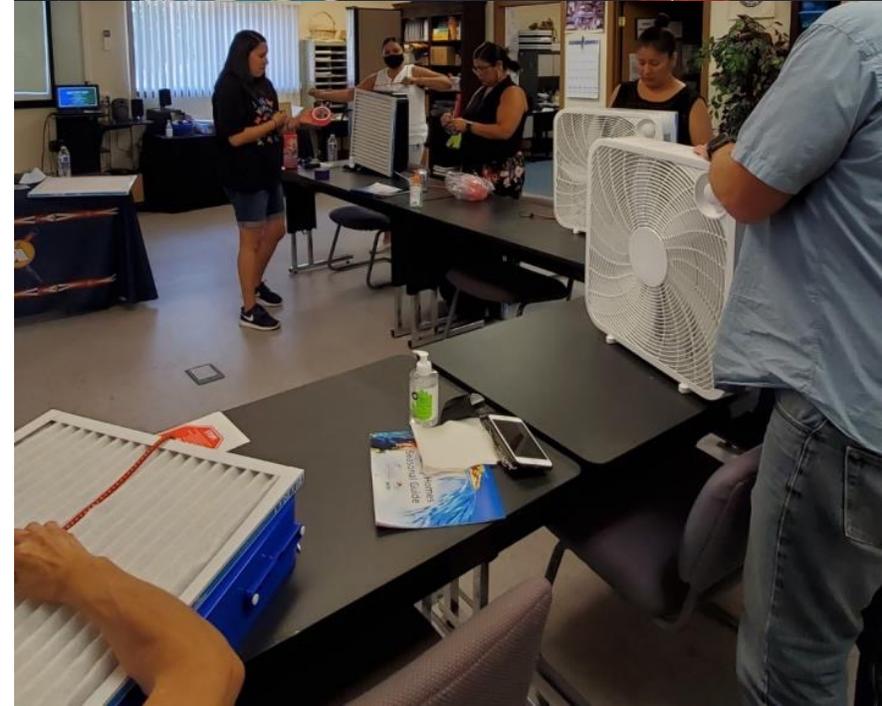
GET YOURSELF READY FOR THE SMOKE

QÍITNE 'ATAMOLÁAMI
AVOID FIRE SMOKE

KEEP YOUR AIR CLEAN BY PURCHASING AN AIR CLEANER OR BUILDING YOUR OWN.

COLVILLE BOX FAN FILTER PROJECT:
[HTTPS://WWW.YOUTUBE.COM/WATCH?V=UKYF2XM8CWS](https://www.youtube.com/watch?v=UKYF2XM8CWS)

LEARN MORE AT airnow.gov



A Decade of Collaboration!

2012 - Summer Reading Programs with ITEP Summer Interns

2021 - PurpleAir Sensors, Air Quality Flags, DIY Filter Fan Demonstration

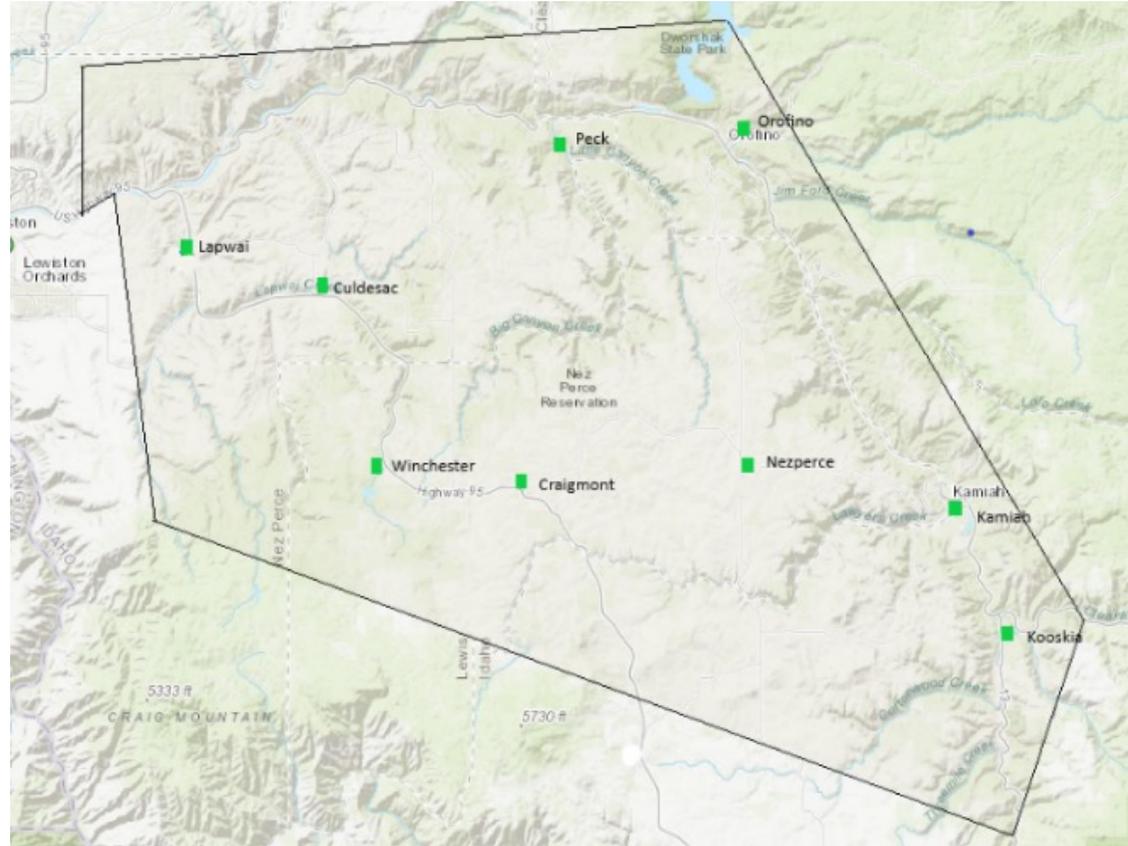
2022 - Piloting Moisture Meter Loan Program and Portable PM2.5 Sensors



Library Summer Reading Program – Story Time & AQ STEM Activity



PurpleAir Sensors at Public Libraries



Winchester Lake State Park
July 9 · 🌳

Wildfires in North and North Central Idaho this week have resulted in deteriorating air quality in Winchester and surrounding areas. There is no active fire risk to Winchester or the state park from ongoing fire incidents, but before you make the trip here - or anywhere - this weekend you should:

1. Be aware of current fires and restrictions and how to stay up to date. (<http://www.idahofireinfo.com/> is a great resource. The fires nearest to Winchester are under the management of Idaho Department of Lands, you can also check their communication pages for up-to-date information on the Craig Mountain fires and closure areas).
2. Be aware of the Air Quality Index (AQI) and your health. As of 6 am on Friday, AQI at Winchester is in the "Unhealthy for Sensitive Groups" (Orange) category. We have been moving between Red/Unhealthy and Orange for the last few days and are likely to continue to do so through the weekend. Check <https://fire.airnow.gov> for AQI readings for your area.

Responsible recreators help our fire crews and our communities! Stay safe!

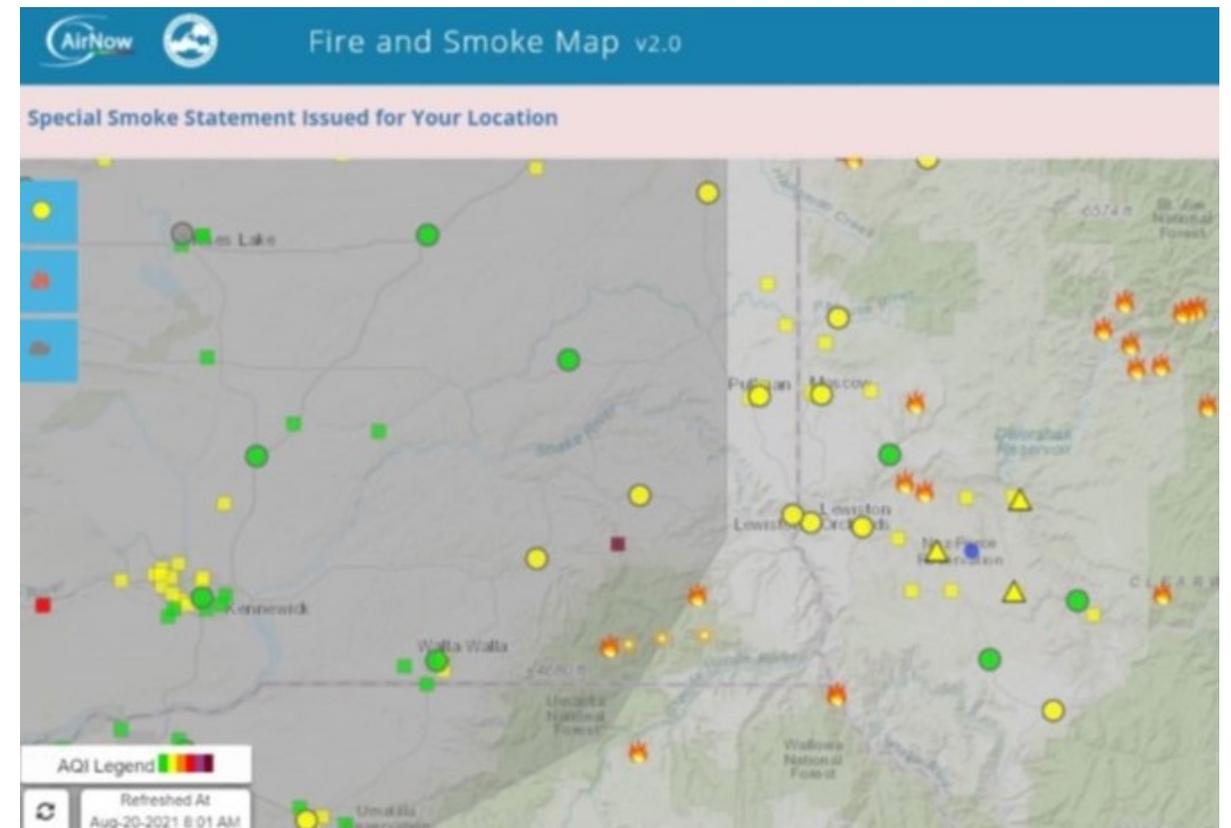
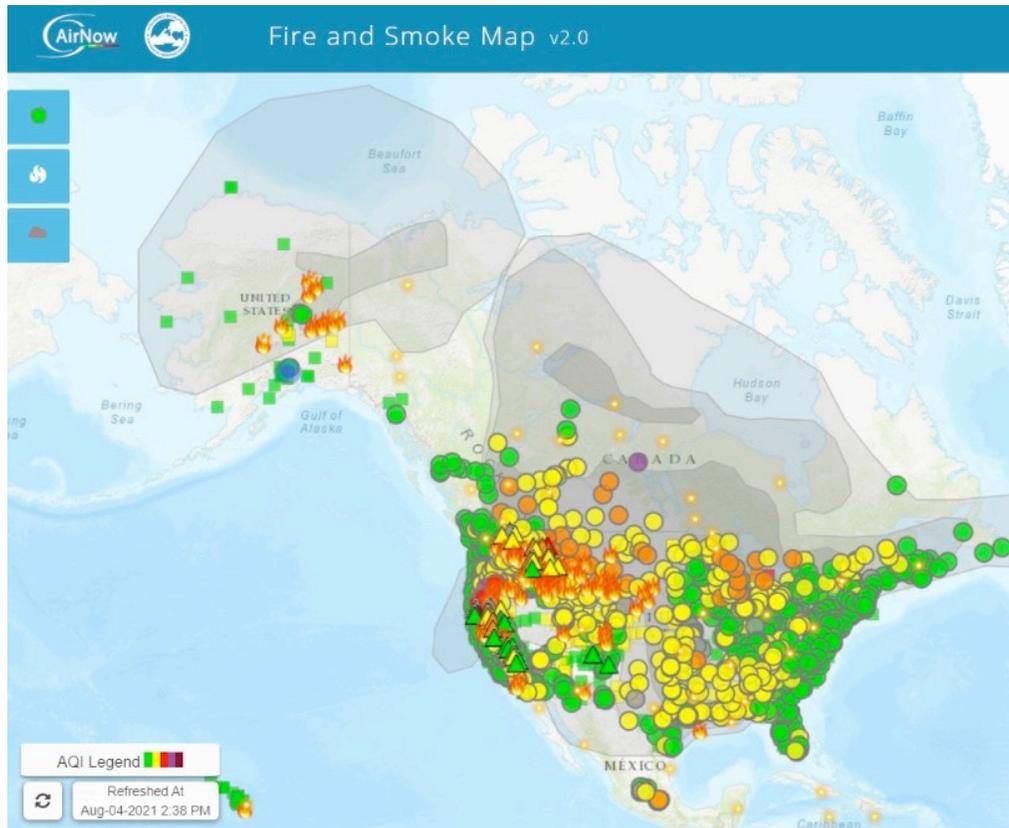


👍👎👏 29 2 Comments 14 Shares

👍 Like 💬 Comment ➦ Share

[Article: EPA Partners with Tribes to Deploy Air Sensors in Communities](#)

AirNow Fire and Smoke Map



For localized smoke map to your area, visit <https://fire.airnow.gov>, click "Search Area," and enter your area or ZIP Code.

Air Quality Flag Program



Kamiah Community Library
June 15 · 🌐

Squinty McGee here to tell you we now have an air quality indicator flag thanks to Nez Perce Tribe ERWM Air Quality Program. We are now on the #purpleair map, too. Stop by for more info! 🌍 Today's green flag means air quality is good, but we all know that will change during fire season. #airquality #nezperceTribe #brightoutside

Image: staff takes squinty selfie outside of the library with a large green flag mounted to the exterior of the building behind staff



👍❤️ You and 11 others



AIR QUALITY INDEX NIMIIPUUTIMTKI

0-50	ta'c héesn'es	xéxus
51-100	náako' ta'c	maqsmáqs
101-150	ayyi'c kóomayni's'ayn	mímqas
151-200	wéet'u ta'c	'ilp'ilp
201-300	q'o' wéet'u ta'c	cíicyele
301-500	ayyi'snix 'oykaloo'ayn	lucéelucel

QÍITINKIN'IX 'IMÁAHINAQ'Í
GET YOURSELF READY FOR THE SMOKE

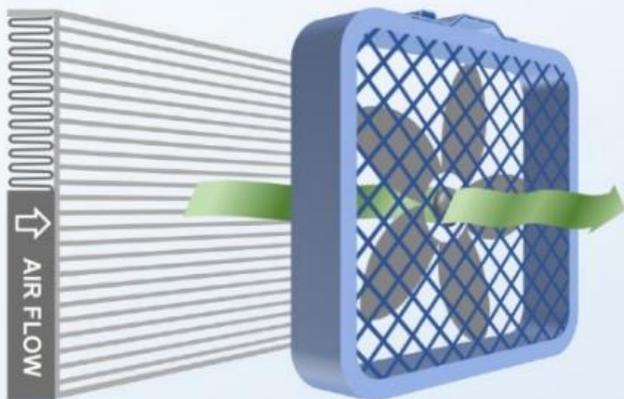
LEARN MORE AT airnow.gov

[Article: Connecting through Libraries - Nez Perce Outreach](#)

DIY Filter Fan – Demonstration

DIY Air Cleaner to Reduce Wildfire Smoke Indoors

Materials



20" X 20" air filter
Suggested rating: MERV 13

20" X 20" box fan
Only use certified fans with UL or ETL marking (2012 model or newer)



Clamps

or



Duct Tape

or



Bungee Cords

Learn about box fan safety tips:

<https://www.epa.gov/air-research/research-diy-air-cleaners-reduce-wildfire-smoke-indoors#FAQ>

Assembly

1. Attach the air filter to the back of the box fan using either clamps, duct tape or bungee cords.
2. Check the filter for the direction of the air flow (marked on the side of the filter).
3. Replace filters when dirty.



[WA Dept of Ecology - Make a Clean Air Fan](#)

#SmokeReady2021 Make your own box fan filter.

Need a low-cost way to reduce smoke in your home? Try making a box fan filter.



[Colville Tribes Air Quality Program - DIY Box Fan Filter](#)

Librarian Story

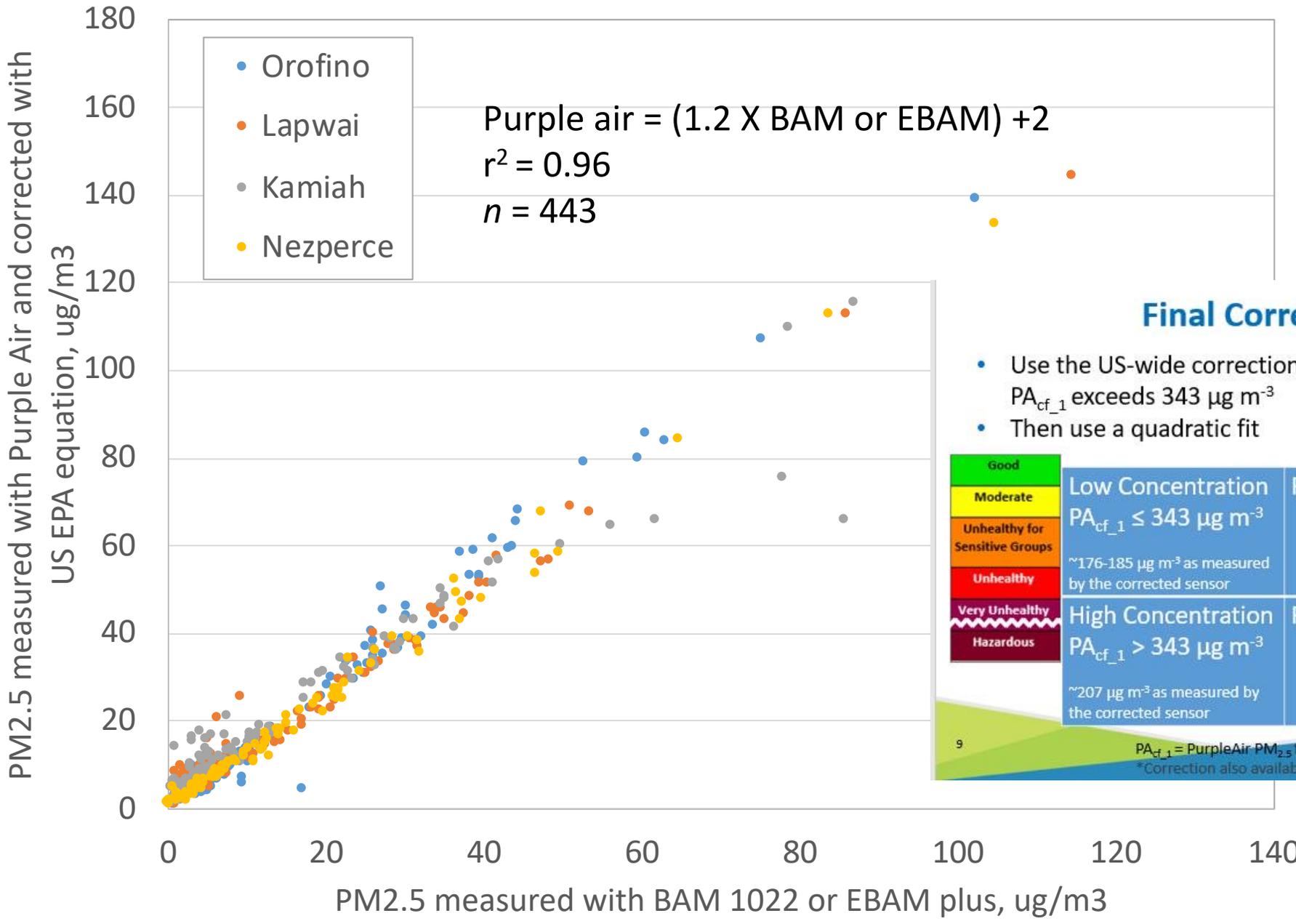
Doreen Schmidt, Peck Community Library



Librarian Story

Chris Case, Winchester Community Library





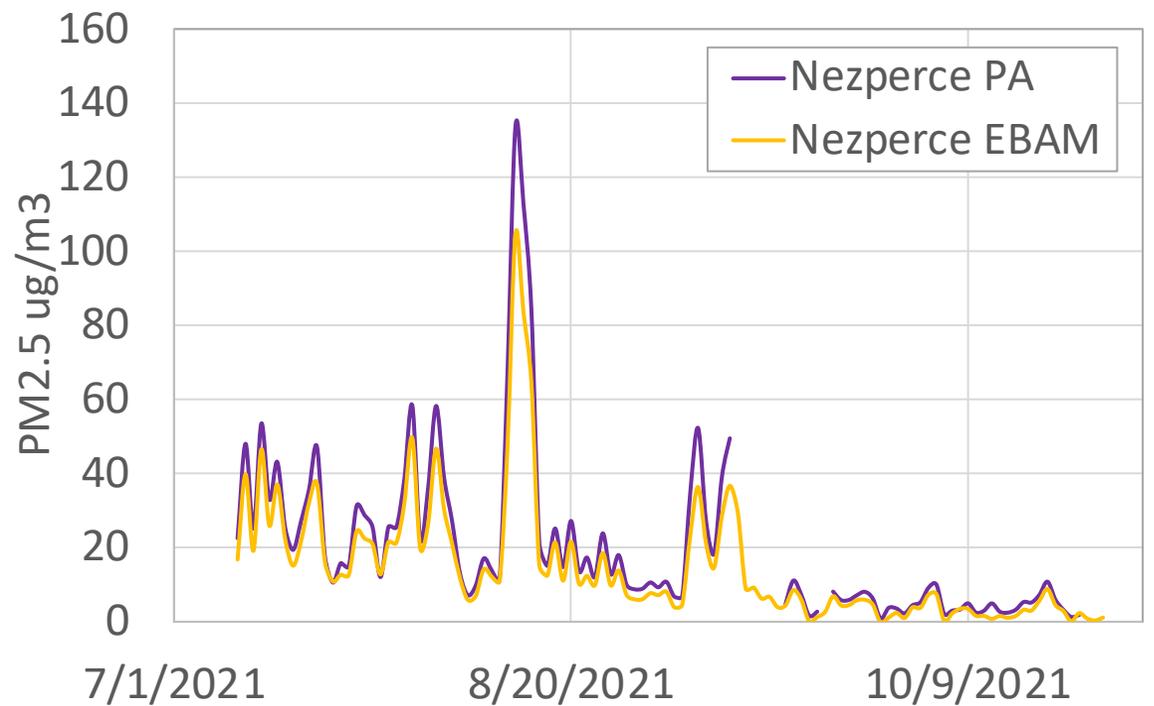
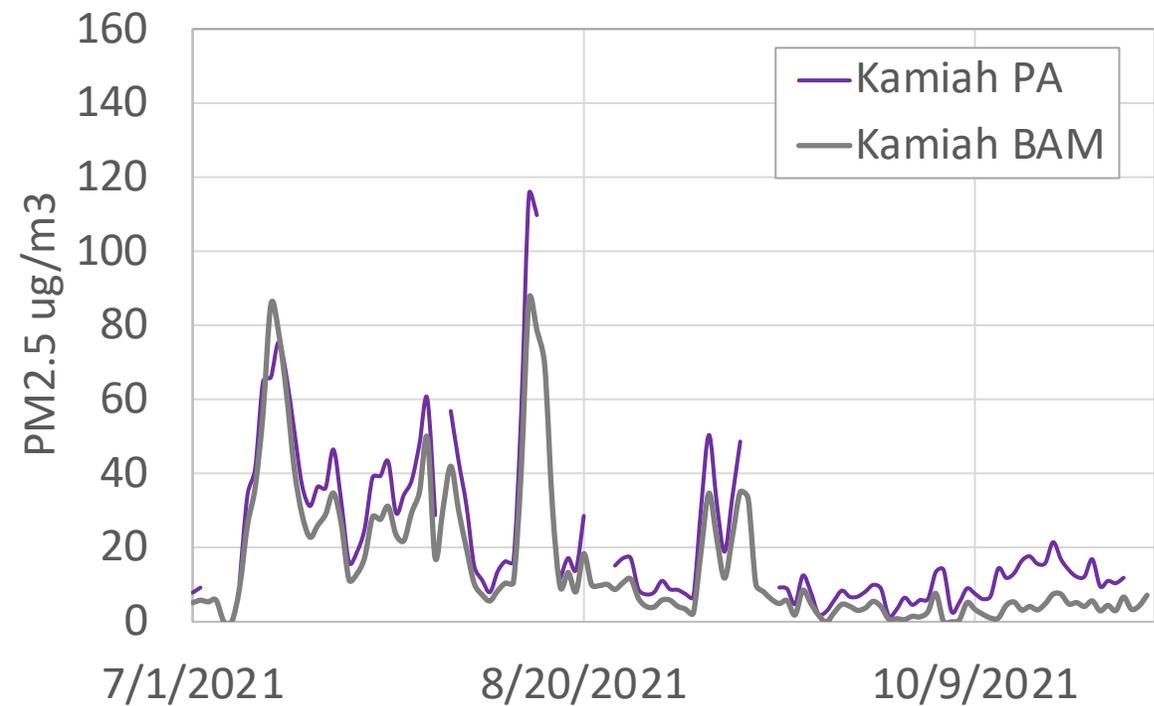
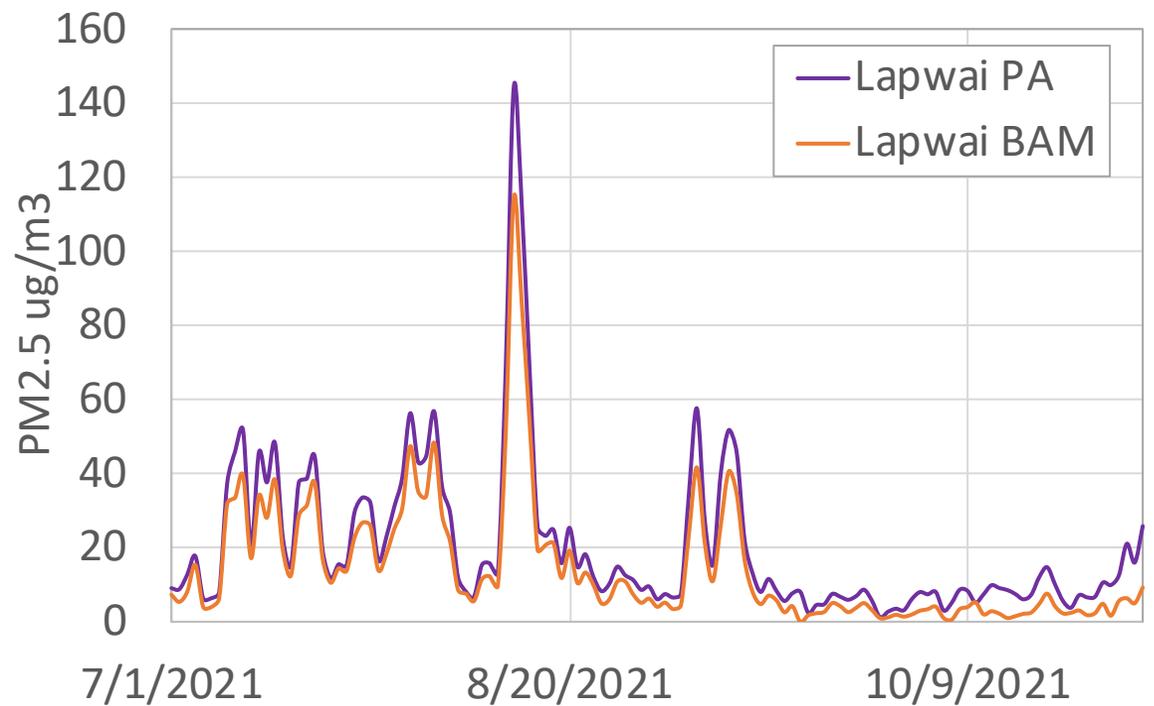
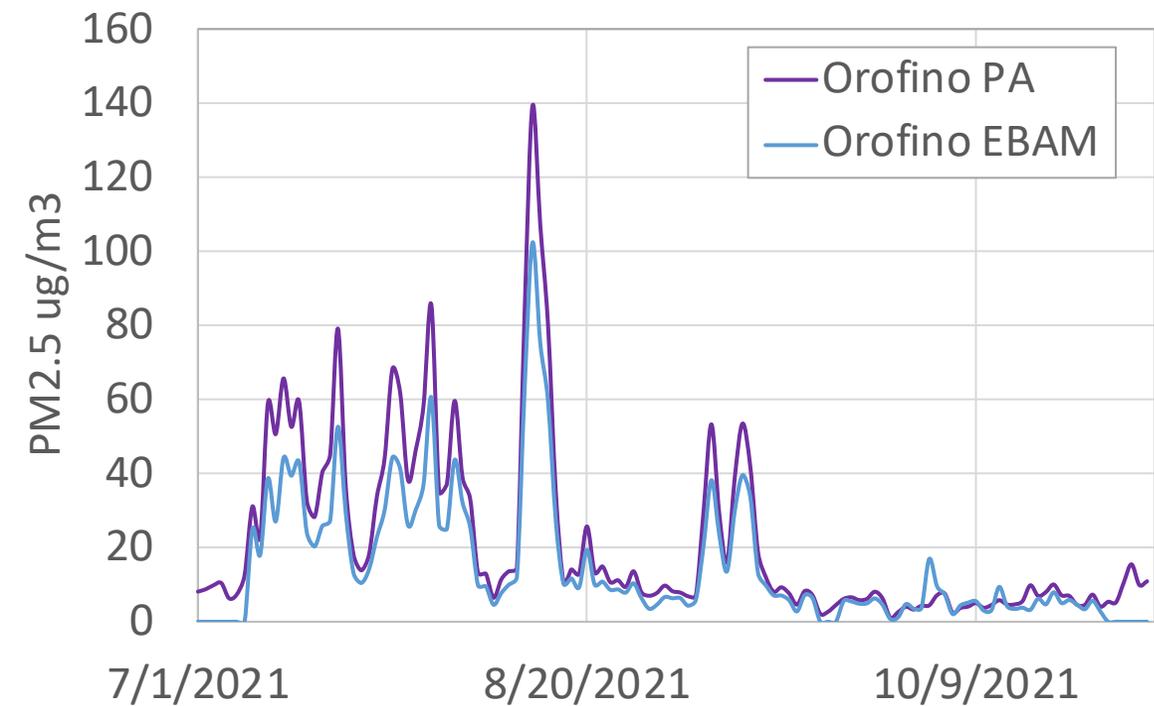
Final Correction

- Use the US-wide correction until PA_{cf_1} exceeds $343 \mu\text{g m}^{-3}$
- Then use a quadratic fit

- US-wide correction best fit: $120\text{-}180 \mu\text{g m}^{-3}$
 - Breakpoint: **Unhealthy-Very Unhealthy**
- Quadratic fit simplest best fit: $200\text{-}300 \mu\text{g m}^{-3}$
 - Breakpoint: **Very Unhealthy-Hazardous**
- Equation change point selected so that it would fall between 2 bins and be less likely to influence the AQI category the data falls into

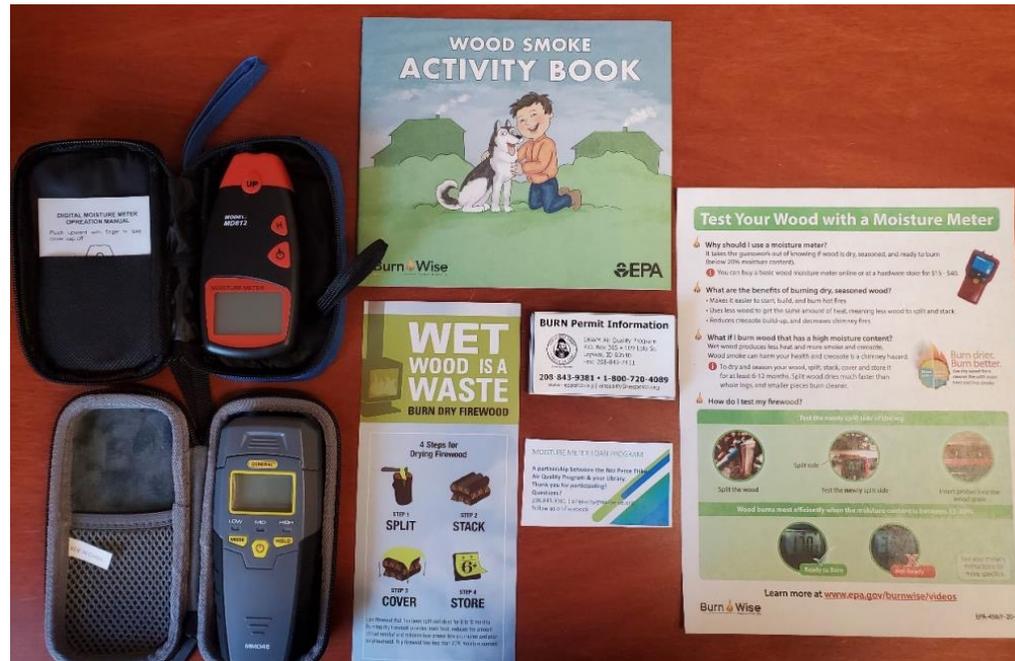
<p>Good</p> <p>Moderate</p> <p>Unhealthy for Sensitive Groups</p> <p>Unhealthy</p> <p>Very Unhealthy</p> <p>Hazardous</p>	<p>Low Concentration</p> <p>$PA_{cf_1} \leq 343 \mu\text{g m}^{-3}$</p> <p>~176-185 $\mu\text{g m}^{-3}$ as measured by the corrected sensor</p>	<p>$PM_{2.5} = 0.52 \times PA_{cf_1} - 0.086 \times RH + 5.75$</p>
	<p>High Concentration</p> <p>$PA_{cf_1} > 343 \mu\text{g m}^{-3}$</p> <p>~207 $\mu\text{g m}^{-3}$ as measured by the corrected sensor</p>	<p>$PM_{2.5} = 0.46 \times PA_{cf_1} + 3.93 \times 10^{-4} \times PA_{cf_1}^2 + 2.97$</p>

9 $PA_{cf_1} = \text{PurpleAir } PM_{2.5} \text{ from the higher of the 2 correction factors (cf) currently labeled as cf_1}$
 *Correction also available for PA_{cf_atm} (the other cf) - currently in use due to API limitations



Pilot Projects with Public Libraries

Moisture Meter Loan Program
January 2022



Portable PM2.5 Sensors – TBD
Summer 2022



Qe'ciyew'yew!

Nez Perce Tribe Air Quality Program
airquality@nezperce.org | 208.843.9381