

Episode 56Nj December 19, 2023. 2<sup>nd</sup> comment to NEJAC & WHEJAC with steps for calculating percent of PM2.5

December 19, 2023. Dear NEJAC & WHEJAC, This is my 2<sup>nd</sup> comment to you before the submission deadline for written comments. My name is Linda Karr and the organization is Residents Against Wood Smoke Emission Particulates, a 501c3 nonprofit organization. The organization email is [rawsepresidents@gmail.com](mailto:rawsepresidents@gmail.com) and my personal email is [lindakarr2@gmail.com](mailto:lindakarr2@gmail.com). I live in Madison, Wisconsin. I have been a research scientist studying the effect of metabotropic glutamate receptor inhibition on epilepsy, but I am currently a financial specialist at the University of Wisconsin-Madison. I am attaching calculation of PM2.5 levels exceeding EPA NAAQS limits from wood smoke entering the yards of near neighbors of indoor residential wood burners. The 5 calculations are evidence of PM2.5 levels from 3 locations, using 1)download of 3 days of PM2.5 data from each of the 5 resident owned PM2.5 monitors located on the PurpleAir map, 2)an Excel worksheet for each, and 3)a simple mathematical formula currently used by the EPA to correlate the data from PurpleAir monitors to \$100,000 EPA monitors, which is (PA times 0.514) plus 1.8304, so that correlated PurpleAir PM2.5 data can be put side by side on U S AirNow Maps of Smoke and Fire alongside data from \$100,000 EPA PM2.5 monitors. The data from U S E P A Maps of Smoke and Fire was used during the incursion of Canadian wildfire smoke into the United States in June 2023 that sickened many and caused disruption of normal business and school activities. Residents Against Wood Smoke Emission Particulates found that this incident sparked interest in the harm of simple wood smoke, and gave the organization hope that recognition of the harm of wood smoke would translate to a move toward treating wood smoke pollution as the hazard that it is to near neighbors of indoor residential wood burners on a daily basis. Congratulations to NEJAC for receiving an 8.8 million dollar grant for assessing emissions from (indoor residential) wood burning devices. I suggest that using data from resident-owned monitors hyper-localized next to indoor residential wood burners is an efficient, low cost way to assess emissions from indoor residential wood burning devices. Using the attached 5 Excel files as templates, a near neighbor of an indoor residential wood burner can present 3 days of evidence to their local Health Department or to the Federal Government itself to show that there is a problem with air pollution from use of this archaic home heating source, or from use of indoor residential wood burning merely for recreation. Since PurpleAir maps are publicly available, so Health Departments or other government agencies can download, during normal government working hours, the data themselves and analyze it using the Excel templates themselves to double check that there is indeed PM2.5 from wood smoke entering the yards of near neighbors that exceeds the EPA's own NAAQS limits. On the RAWSEPresidents site Excel files for 25 locations across the United States and Canada are stored and can be downloaded and used as templates for other locations. There are Youtube videos by RAWSEPresidents showing step by step how to use these templates. The general steps are 1)Download 3 days of data from the PurpleAir map. 2)Copy the download and paste it into cell A6 of the Main Page of the Excel Sheet. Correlation to \$100,000 EPA monitor will automatically populate in columns E F and G for 432 rows representing 10 minute periods over a 72 hour (3 day) period.3)Select and Copy the 432 rows of 7 columns of data A7:G438 from the Main Excel Page 4)Paste 1 2 3 the data into cell A1 of the Yellow Sheet, 5)Paste 1 2 3 the data into cell A1 of the Orange Sheet 6)Paste 1 2 3 into the data into cell A1 of the Red Sheet. Then sort the 3 color sheets so that the colored cells are at the top of each sheet. Color sheets Yellow, Orange and Red have conditional formatting that makes 6A)cells in column E turn yellow when a number is above 12, 6B)cells in column F turn orange when a number is above 25, and 6C)cells in column G turn light red when a number is above 35 so 7a)In the Yellow Sheet choose the pre made Custom Sort of Column E by cell color Yellow on Top and Click OK 7b) In the Orange Sheet choose the pre made Custom Sort of Column F by cell color Orange on Top and click OK. 7c) In the Red Sheet choose the pre made Custom Sort of Column G by cell color Red on Top and click OK. 8a)Go to the Yellow Sheet and scroll down to get to the last row colored Yellow.

12/15/2023 to 12/18/2023

	Location PM2.5 over 3 days	% above 12ug/m3 PM2.5	% above 25ug/m3 PM2.5	% above 35ug/m3 PM2.5	Average PM2.5 at one monitor over 3 days	PM2.5 average in 3 days
1	California, Contra Costa County, Kensington	100%	80%	21%	Average PM2.5	29
2	California, Humboldt County, Trinidad	73%	40%	17%	Average PM2.5	21
3	Maine, Androscoggin County, Lewiston, Echo Road	86%	47%	22%	Average PM2.5	23
4	Maine, Kennebec County, Winslow	64%	37%	23%	Average PM2.5	22
5	Maine, Sagadahoc County, Topsham	66%	25%	20%	Average PM2.5	19
6	Wisconsin, Dane County, Town of Berry, Turner	95%	90%	54%	Average PM2.5	35
7	Wisconsin, Dane County, Black Earth, Daniel	94%	90%	56%	Average PM2.5	36
8	Wisconsin, Dane County, Madison, 950 Clarence	96%	93%	55%	Average PM2.5	34
9	Wisconsin, Dane County, Madison, Dudgeon	96%	94%	57%	Average PM2.5	35
10	Wisconsin, Dane County, Madison, Elinor Street	96%	91%	65%	Average PM2.5	40
11	Wisconsin, Dane County, Madison, Faircrest	95%	90%	52%	Average PM2.5	34
12	Wisconsin, Dane County, Madison, LaFollette	78%	20%	0%	Average PM2.5	21
13	Wisconsin, Dane County, Madison, Sasy1	96%	73%	12%	Average PM2.5	31
14	Wisconsin, Dane County, Madison, Wexford Village	92%	34%	0%	Average PM2.5	21
15	Wisconsin, Dane County, Maple Bluff, GoPackGo	94%	83%	20%	Average PM2.5	29
16	Wisconsin, Dane County, Mount Horeb	92%	61%	31%	Average PM2.5	26
17	Wisconsin, Marathon County, Wausau	88%	76%	64%	Average PM2.5	35
18	Wisconsin, Oneida County, Rhinelander	74%	60%	41%	Average PM2.5	25
19	Wisconsin, Polk County, Half Moon Lake	87%	77%	64%	Average PM2.5	39
20	Wisconsin, Polk County, Milltown, Manor A	81%	74%	63%	Average PM2.5	41
21	Wisconsin, Sauk County, Spring Green	94%	92%	59%	Average PM2.5	34
22	Wisconsin, Vernon County, LaFarge	88%	49%	5%	Average PM2.5	31
23	Canada, BC Parksville, Acacia N	84%	66%	31%	Average PM2.5	30
24	Canada, BC Shulus, Office	28%	6%	1%	Average PM2.5	11
25	Canada, BC, Vancouver, Woodland	84%	38%	6%	Average PM2.5	25
26	Average of all locations	85%	63%	34%	Average PM2.5	29

Note the last Yellow row number and type that row number into E5 on the main sheet. 8b)Go to the Orange Sheet and scroll down to get to the last row colored Orange. Note the last Orange row number and type that row number into F5 on the main sheet. 8c)Go to the Red Sheet and scroll down to get to the last row colored Red. Note the last Red row number and type that row number into G5 on the main sheet. 9)Percentage of time for 3 days (72 hours) in 10 minute intervals that PM2.5 has been above 12 micrograms per meter cubed, above 25 micrograms per meter cubed and above 35 micrograms per meter cubed PM2.5 in the yard of the near neighbor will autocalculate in cells B4, C4 and D4 of the main page. In this way, air pollution affecting near neighbors of indoor residential wood burners can be assessed. This method of assessment will be transparent and understandable to near neighbors themselves and to the general public concerned about PM2.5 pollution from wood burning. The other method of regulating air pollution from indoor residential wood stoves has been a failure, according to the February 2023 report of the Office of the Inspector General (O I G) watchdog of the EPA, due to lobbying by the wood stove industry that resulted in huge loopholes to compliance to even the lax standards for indoor residential wood stoves (NSPS) which have been in place only since 1988, but have never been complied with to any extent. Wood burning, like all solid fuel burning, is also inherently polluting. Just don't burn wood to begin with since the alternative means of heating homes are cheaper in 2023 and becoming more widely available. Wood burning is not physically addictive to humans, unlike cigarette smoking or alcohol consumption. Indoor residential wood burners can just stop. RAWSEP is writing a grant with Expert Match from the Department of Energy (D O E) to hand out Heat Pumps that work down to 40 degrees below zero to current indoor residential wood burners that hand in their wood burning stoves. This RAWSEP grant would supplement the expected Federal rebates for Heat Pumps for up to \$8,000 per household on a sliding income scale in 2024. RAWSEP's grant would also pay for handing out PurpleAir PM2.5 monitors to any near neighbor of an indoor residential wood burner whose wood smoke invades the near neighbors' yard and sickens them. Currently, if a wood stove is certified safe by EPA NSPS standards the local Health Department acts as if their hands are tied, and no action is taken to stop the polluting wood burning affecting the health and curbing the daily activities of near neighbors. Warnings that it was unsafe to exercise outdoors were made when the Canadian wildfire smoke invaded the United States in June 2023. Daily threats to health when going outside make near neighbors of indoor residential wood burners spend their winters (and year round in many cases) staying inside their sealed homes with multiple air purifiers running in order to maintain their health. Wood smoke is 90% PM2.5, particulate matter of 2.5 micrometer size, the perfect size to infiltrate the human lung, setting off a cascade of human health problems and early deaths. Wood smoke emits more C O 2 and PM2.5 than the fossil fuel coal burning. Wood smoke emits 450 times the PM2.5 as the fossil fuel natural gas burning. Excel file Templates and actual calculation files for 25 monitor locations every 3 days can now be downloaded directly from <https://rawsepresidents.com> Or Email [rawsepresidents@gmail.com](mailto:rawsepresidents@gmail.com) for Excel Template to be emailed to you, if you own a PurpleAir PM2.5 monitor, and are a near neighbor of an indoor residential wood burner whose PM2.5 smoke enters your yard and sickens you. The chart of the PM2.5 levels above NAAQS limits on 12/18/2023, using this RAWSEP Excel method, follows. Attached to this comment are five Excel sheets of 5 locations for a 3 day period ending in 12/18/2023, 1)Kensington, California; 2)Lewiston, Maine; 3)Black Earth, Wisconsin; 4)Madison, Wisconsin on Elinor Street, and 5)Half Moon Lake, Wisconsin.

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