AP-42 Section 10.8
Reference 5
Report Sect. 2
Reference 3

Note: This is a reference cited in *AP 42, Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources.* AP42 is located on the EPA web site at www.epa.gov/ttn/chief/ap42/

The file name refers to the reference number, the AP42 chapter and section. The file name "ref02_c01s02.pdf" would mean the reference is from AP42 chapter 1 section 2. The reference may be from a previous version of the section and no longer cited. The primary source should always be checked.

Martin J. Wikstrom
Manager
Government Affairs

February 18, 1994

VIA FACSIMILE

U.S. Environmental Protection Agency
Office of Air Quality and Planning Standards
Emission Inventory Branch (MD-14)
Research Triangle Park, NC 27711

ATTN: Dallas W. Safriet

RE: Section 10.8, *Wood Preserving*
AP-42, *Compilation of Air Pollutant Emission Factors*

The American Wood Preservers Institute (AWPI or Institute) and its member companies hereby submit comments in response to the United States Environmental Protection Agency's (EPA or Agency) August 26, 1993 draft of Section 10.8, *Wood Preserving*, that EPA is proposing to publish in the supplement to AP-42, *Compilation of Air Pollutant Emission Factors.*

AWPI is the national trade association representing the wood-preserving industry. The Institute's members include manufacturers of treated-wood products; registrants of wood-preserving pesticides; suppliers of raw materials and equipment; and providers of allied services (e.g., environmental engineering and consulting firms).

AWPI supports the Agency's efforts to publish emission factors for the wood preserving industry. Wood preservers would welcome emission factors that, when published, would be technically correct and representative of the industry as a whole.

BACKGROUND

After being notified in early 1992 that the EPA had determined that the wood treating industry may reasonably be anticipated to emit several of the 189 hazardous air pollutants (HAPs), the Institute began an ongoing dialogue between EPA's Office of Air Quality and Planning Standards (OAQPS) staff and members of AWPI's Clean Air Act Subcommittee. AWPI met with OAQPS to determine the direction the Agency would be pursuing in meeting the requirements set forth under the Clean Air Act (CAA), as amended November 1990.

In August 1992, EPA sent Wood Treatment NESHAP Information Collection Requests (ICRs) to wood treating facilities throughout the country. ICRs were completed for 86 facilities representing 67 companies and returned to EPA later that same year.

American Wood Preservers Institute
Tysons International Building, Suite 150
Vienna, VA 22182
(703) 893-4005 • (703) 893-8492 FAX

Most of the HAP emissions reported in the ICR responses were not based on actual test data. Only 3 of the 86 facilities responding to the ICR used actual test data to quantify HAP emissions and these data were not believed to be representative of the treatment process nor of the wood treatment facility (RTI Memorandum, January 11, 1993, from Betty Gatano, RTI to Eugene Crumpler, USEPA OAQPS).

Following the submission of the ICRs, AWPI again met with OAQPS staff on January 12, 1993. At that meeting, the Agency and it's contractor discussed the results of the ICR effort. Noting that existing data and actual test results were very limited, EPA informed AWPI that the Agency intended to get out in the field as soon as possible to obtain test data. Emission testing was performed at two wood treating facilities in August and September of 1993. To date, data from these tests has not been released by EPA .

EMISSION FACTOR DOCUMENTATION FOR AP-42 SECTION 10.8

Given the Institute's history of cooperation with OAQPS and the mutual understanding that minimal existing data exists, the AWPI was surprised to learn of EPA's intention to release emission factors for wood treating facilities as a supplement to AP-42. AWPI is very concerned about the quality of the data included in the draft document not to mention the paucity of those data.

In the draft's introduction, EPA states that AP-42 is provided to respond to new emission factor needs. AWPI believes that what is needed are reliable emission factors. Publishing EPA-acknowledged non-representative data is not needed and works at cross-purposes to the EPA goal.

AWPI understands that the Agency intends to publish only Section 10.8, *Wood Preserving* (Section 5 of the draft document). However, since there are some serious errors, inaccuracies and omissions throughout, AWPI is submitting comments on the entire document.

GENERAL COMMENTS

The Institute would like to have specific guidance from the Agency on how industry should evaluate emission factors using nondetectable or "less than" values provided by EPA? AWPI does not believe that emission factors should be published for compounds that were not detected in any test. For example, pentachlorophenol was not detected in any of the tests on pentachlorophenol conditioning or vacuum cycles, yet there are emission factors published for this compound from these sources. Further, the "less than" values provide no data on what the emission *is*, only on what it *is not*. Calculating any emissions under these scenarios would be speculative at best. Consequently, these factors should be eliminated from AP-42.

Table 4.1 of the draft lists 10 references for wood preserving which were documented and reviewed in the process of developing emission factors. Eight of these were rejected as unsuitable. Seven of the eight were rejected due to either a lack of or insufficient process data. The eighth was rejected due to lack of emission rates. The two

remaining references were the Wyckoff facility on Bainbridge Island (Reference 3) and the Koppers' facility in Oroville (Reference 10).

The Institute wishes to emphasize that waterborne preservatives, particularly chromated copper arsenate (CCA), have been studied by EPA's OAQPS and found not to be a significant source of air contaminants. This is the reason why this segment of the industry was not considered for inclusion in the major source category.

Data is presented in the draft from the 1988 study performed at the Koppers Industries' Oroville, California facility (characterized by EPA as "poor") for chromium and copper emissions from the CCA vacuum exhaust. These values are so small that they are virtually insignificant. However, a treater may be forced to spend a great deal of time and money to make this calculation and fill in paper simply because they are "in the book." As for ammoniacal waterbornes, it should be noted that the only potential emission of any significance would be ammonia.

Many of the emission factors provided by the proposed AP-42 are for constituents that are not HAPs under the Clean Air Act (i.e., acenaphthene, phenanthrene, fluorene, acenaphthalene, 2-methylnaphthalene).

THE WYCOFF FACILITY DATA

Since most of the proposed emission factors are based on the Wyckoff study, AWPI would like to offer some comments specific to those data. There are several points about that study which cause results to be less reliable and/or to substantially overestimate emissions.

The volume of the cylinder and associated piping is the maximum air volume that could be removed, assuming no significant leaks. The fact that vacuum was achieved negates the possibility of significant leakage. The Wyckoff facility had two vacuum pumps serving six cylinders. Although each cylinder had its own condenser and only one cylinder was operated on a vacuum pump during the study test, most piping would still have been connected to the vacuum system. Thus, the total volume of air available during this test could be somwhat higher than a single cylinder system. However, even this would not account for the mass flows reported with the Wyckoff data. Given that the mass flows computed for releases from the vacuum system during the conditioning cycle and the final vacuum cycle were so high, the reported results must be erroneous and should not be offered by EPA as reliable emission factors.

Analytical results seem very questionable. For the creosote vacuum test, EPA decided that the naphthalene results were unreliable, but chose to use the remaining data. However, for the duplicate test results, other constituents were also highly variable. Acenaphthene results were 3,600 and 40,000 – about a factor of ten variance. Fluorene results were 4,700 and 25,000 – about a five fold difference. Other results varied by a factor of two to four.

Further, test results clearly demonstrate cross contamination. Using EPA's proposed emission factors to treat a theoretical equivalent volume of wood with

pentachlorophenol versus treating that same volume of wood with creosote, AWPI was amazed to discover that a pentachlorophenol treater would have larger emissions of creosote constituents than a creosote treater! For example, acenaphtene results associated with pentachlorophenol were 0.028 lb/cf – an order of magnitude higher than the 0.0026 lb/cf reported for the creosote conditioning cycle. It is not surprising to see that EPA has given these data an "E–Poor" rating – the lowest emission factor quality rating.

Also the emission factors are reportedly based on an "average" of three test runs from one test. In many cases, constituents were not detected in many of the test runs. For instance, pentachlorophenol was not detected in any of the conditioning cycle or final vacuum/cool-down cycle tests yet it was given an emission factor of <0.0009 lb/cf. It appears to AWPI that the fugitive emission factors for pentachlorophenol are based on maximum values reported in the draft Wyckoff report (i.e., see Table 5.9 of that report). As stated earlier, AWPI does not feel that emission factors should be published when the compound was not detected in any test.

The cylinder door fugitive emissions are also quite variable, even between duplicate samples. Thus, these results are of questionable accuracy. AWPI is unable to trace the calculations from the Wyckoff study to reach the emission factors stated in the AP-42 document. Indeed, the calculations are not well documented. For example, no mention is made of factors such as ambient wind velocity. Considering the fact that a treating cylinder is horizontal, typically 6' in diameter by 140' in length, and closed on one end, it is inconceivable that the estimated flow rate of 4,000 acfm could actually ever occur. AWPI requests that EPA share the background calculations to assure that the raw data is properly used and interpreted and that formulas and calculations are correct. Where duplicate tests were made, was the factor derived from the minimum, maximum or average value?

Further, Wycoff used piston vacuum pumps. This type of pump is unusual in the wood treating industry. This is merely one example of how this plant and the associated emission results are probably not representative of our industry (as noted by EPA on page 26 of the documentation).

And this is only one such difference. Others differences which reflect the fact that not all treating facilities are alike include:

- different wood species;
- different overall cycles to meet retention/penetration;
- different conditioning cycles;
- different treating/vacuum cycles;
- different post treating cycles (e.g., steaming, holding in cylinder following treatment);
- different mechanical equipment (e.g., not only pump types but size, surface condensers (or in some cases, barometric condensers), equalizing lines between cylinders and work tanks); and
- different sources of creosote or other wood preservatives.

Following are specific comments on the draft document.

SPECIFIC COMMENTS ON THE DRAFT

(p. 6, Table 2-3)

Table 2-3 should show creosote under the "oilborne preservative" heading. HAPs should be indicated in bold or by footnote since many of the compounds of creosote are not HAPs. Constituent levels/percentages within creosote will vary considerably depending on the source. A footnote should be added to reflect this.

(p.7, para. 1)

Several "drawbacks" (of creosote) were cited. Among these so-called "drawbacks" are:

- The term "foul odor" is subjective and AWPI objects to its use.
- Poor paint retention is not a "drawback" as creosote treated wood does not need to be painted.
- Creosote treated wood is not "toxic to plants." This statement is unfounded and should be withdrawn.
- Skin irritations and burns can arise from the improper handling of creosote-treated wood. Proper handling causes no problems and therefore is not a "drawback."

(p. 7, para. 3)

The volatile solvents liquefied petroleum gas and methylene chloride are no longer used with pentachlorophenol solutions. They have been replaced with mineral spirits.

(p. 7, para. last)

Acid chromate, ammoniacal copper arsenate, chromated zinc chloride and flourochrome arsenate phenol are not "standard wood preservatives used in water solution" and should be deleted. These are no longer used in the United States.

(p. 8, para. 1)

In the second sentence, replace "ammoniacal copper arsenate" with "ammoniacal copper zinc arsenate (ACZA)" and add ", as well as above-ground uses." at the end to properly complete the sentence.

(p.8, para. 2)

Delete ", but protected from rain," in the last sentence.

(p. 8, para. 3)

Delete first sentence in its entirety. The second sentence should read: "Since certain wood species will rot before air drying can be completed in some climates, wood is artificially conditioned ..." Therefore, "Because time is insufficient for air seasoning," should be deleted.

Steaming and Boultonizing also have the added effect of disinfecting (killing decay organisms). Conditioning may occur in "clean" cylinders (e.g., a segregated system) in the absence of preservative, thereby avoiding a preservative emission from this step of the process. Delete the last sentance because vapor drying is no longer used.

(p. 8, para 4)

First sentence (finished on p. 9) should end in "or nonpressure thermal processes, which do not involve the use of direct induced pressure. Delete the second sentence.

(p. 10, Figure 2-1)

There are no VOCs from waterborne preservative operations other than those naturally ocurring in the wood and these would be very small. Figure 2-1 should clearly state this. A separate figure could also be added for waterbornes to avoid potential misunderstandings.

(p. 11, para. 1)

In step 5 of the full-cell process, the terms "briefly" and "most of the" are subjective and should be deleted.

(p. 11, para. 3)

The statement "This process is only used on wood 5 centimeters or less" is incorrect and should be deleted.

(pp. 13-14, Section 2.3)

The report should recognize that waterborne solutions are not typically associated with significant emissions. As for ammoniacal waterbornes (ACZA), it should be noted that the only potential emission of any significance would be ammonia.

(p. 13, para. 4)

Again, conditioning may occur in "clean" cylinders (e.g., a segregated system) in the absence of preservative, thereby avoiding a preservative emission from this step of the process.

(p. 13, para. 5)

Water is the major component of the "white emission plume" referenced and this should be noted.

(p. 14, para. 3)

Under 2.4 Control Technology, AWPI resoundingly agrees with the EPA opinion that ventilation hood controls for freshly treated charges are economically unfeasible. It should be noted that this applies not only to retrofits of existing plants but to new plants as well.

(p. 15, para. 1)

An additional drawback to a water quench system is the fact that such a system generates a significant quantity of wastewater and that wastewater would be a listed hazardous waste.

(p. 15, para. 2)

A properly sized condenser provided with adequate cooling water will condense virtually all of the organics in the exhaust.

(p. 17)

Under 3.2 Emission Data Quality Rating System, EPA should consider supplementing or requesting supplements to existing data so that more emission factors could be derived. Many of the five exclusion factors could be overcome with additional documentation.

(p. 23, para. 1)

AWPI would like to see copies of the calculations referred to in this paragraph to p peer review.

If we drop the Wyckoff data This won't be necessary.

(p. 23, para. 4)

The Oroville facility uses the "empty cell" process. It does not use the "full-cell" p

(p. 26, para. 1)

AWPI strongly agrees with EPA that "it is likely that these emission factors are not representative of the industry." That is one of the reasons why AWPI implores EPA to not release these particular factors at this time and to pursue meaningful data.

(p. 26, p. 40)

AWPI questions in the strongest terms whether the factors, especially with regards to the Wyckoff study, are based on "averages" (see discussion earlier).

(pp. 27-38)

Tables 4-3 through 4-13 are all entitled "Full-Cell." The Oroville facility described as "Reference Number 10" does not use the full-cell process. Were the other tests actually conducted on a full-cell process? Full-cell is seldom used in creosote treating. Only marine timber is preserved in this manner.

(pp. 32-34 and p. 38)

Creosote constituents would not be emitted from a pure pentachlorophenol system. Was this cylinder alternately used for creosote and pentachlorophenol? Was it cross contamination due to the equipment configuration unique to this facility? The text should explain why creosote constituents were detected.

(pp. 27-28, p. 31)

Pentachlorophenol would not be emitted from a pure creosote system. This data should be deleted or a statement of explanation provided.

(p. 10.8-2, initial)

Delete ", but protected from rain," in the last sentence.

(p. 10.8-2, para. 1)

Delete first sentence in its entirety. The second sentence should read: "Since certain wood species will rot before air drying can be completed in some climates, wood is artificially conditioned ..." Therefore, "Because time is insufficient for air seasoning," should be deleted.

Steaming and Boultonizing also have the added effect of disinfecting (killing decay organisms). Conditioning may occur in "clean" cylinders (e.g., a segregated system) in the absence of preservative, thereby avoiding a preservative emission from this step of the process. Delete the last sentance because vapor drying is no longer used.

(p. 10.8-2, para 2)

First sentence (finished on p. 9) should end in "or nonpressure thermal processes, which do not involve the use of direct induced pressure. Delete the second sentence.

(p. 10.8-3, Full-cell process step 5)

The terms "briefly" and "most of the" are subjective and should be deleted.

(p. 10.8-3, Full-cell process last para.)

A note should be added pointing out that segregated systems can be utilized where the steam conditioning and the preservative application steps may be conducted in separate cylinders.

(p. 10.8-3, Modified full-cell process)

The statement "This process is only used on wood 5 centimeters or less" is incorrect and should be deleted.

(p. 10.8-4)

There are no VOCs from waterborne preservative operations other than those naturally ocurring in the wood and these would be very small. The figure should clearly state this. A separate figure could also be added for waterbornes to avoid potential misunderstandings.

(p. 10.8-7, Emissions)

EPA should acknowledge in Section 10.8.2 Emissions the poor quality of the data and the likelihood that these emission factors are not representative of the industry (as was done in Section 4.2.3 on page 26).

The report should recognize that waterborne solutions are not typically associated with significant emissions. As for ammoniacal waterbornes (ACZA), it should be noted that the only potential emission of any significance would be ammonia. The report should clearly state such.

(p. 10.8-8 and p. 10.8-9)

Tables 10.8-1 and 10.8-2 are entitled "Full-Cell." The Oroville facility described as "Reference Number 5" does not use the full-cell process. Were the other tests actually conducted on a full-cell process? Full-cell is seldom used in creosote treating. Only marine timber is preserved in this manner.

(p. 10.8-8, Table 10.8-1)

Pentachlorophenol would not be emitted from a pure creosote system. This data should be deleted or a statement of explanation provided.

(p. 10.8-9, Table 10.8-2)

Creosote constituents would not be emitted from a pure pentachlorophenol system. Was this cylinder alternately used for creosote and pentachlorophenol? Was it cross contamination due to the equipment configuration unique to this facility? The text should explain why creosote constituents were detected.

(p. 10.8-10, Table 10.8-3)

This table is totally inappropriate and should be deleted. Even a large treater using the emission factors proposed would report results so small as to be insignificant.

(p. 10.8-11, Controls)

The report should make clear that this does not apply to CCA treating processes.

(p. 10.8-11, para. 2)

AWPI resoundingly agrees with the EPA opinion that ventilation hood controls for freshly treated charges are economically unfeasible. It should be noted that this applies not only to retrofits of existing plants but to new plants as well.

(p. 10.8-11, para 3)

An additional drawback to a water quench system is the fact that such a system generates a significant quantity of wastewater and that wastewater would be a listed hazardous waste.

CONCLUSION

With almost 80% (50 out of 63) of the proposed emission factors coming solely from the Wyckoff facility test, AWPI is very concerned that EPA would be making a serious mistake in publishing data that are so unqualified and of such poor quality. AWPI urges EPA to hold off on issuing Section 10.8 until such time as more realistic and valid data can be produced. In that regard, AWPI members are in the process of gathering additional data which will be forwarded to EPA upon completion.

AWPI is determined to continue in the ongoing spirit of cooperation that has been established with the Agency's OAQPS staff. The Institute is willing to meet with you and discuss these comments in greater detail if you believe this would be constructive. Should you have any questions regarding these comments, please do not hesitate to contact us.

Submitted by,
AMERICAN WOOD PRESERVERS INSTITUTE

Martin J. Wikstrom
Manager, Government Affairs

cc: AWPI Clean Air Act Subcommittee
E. Crumpler, U.S. EPA OAQPS