TREATED WOOD COUNCIL

1111 19th Street, NW
Suite 800
Washington, DC 20036
Phone: (202) 463-2045
Fax: (202) 463-2059

April 3, 2013

BY CERTIFIED MAIL

The Honorable Bob Perciasepe
Acting Administrator
U.S. Environmental Protection Agency
Mail Code 1101 A, Ariel Rios Building
1200 Pennsylvania Ave., N.W.
Washington, DC 20460

Re: Petition for Determination Identifying Non-Hazardous Secondary Treated Wood Biomass as a Non-Waste under 40 C.F.R. §241.4 (a)

Dear Acting Administrator Perciasepe:

The Treated Wood Council (TWC) submits the following petition under 40 C.F.R. § 241.4 (b) for a determination that non-hazardous secondary treated wood biomass (NHSTWB) is, as a category, not a waste. Further, TWC requests that NHSTWB be added to the materials identified in 40 C.F.R. § 241.4 (a) as a material that is not a solid waste when used as a fuel in a combustion unit. As demonstrated below, depending on the type of NHSTWB, it has either not been discarded in the first instance or is processed and managed pursuant to proven practices comparable to those EPA has previously approved; in both cases it is legitimately used as a fuel in a combustion unit. To the extent any of the legitimacy criteria specified in 40 C.F.R. § 241.3 (d)(1) are not met, NHSTWB is functionally the same as its comparable traditional fuel, and a balancing of all relevant factors, as relied upon in previous EPA non-waste determinations, requires that NHSTWB similarly be determined to be a non-waste. Supporting data for each of the types of NHSTWB covered by this petition are provided below.

1. Petitioner's Name and Address

Treated Wood Council
1111 19th Street, N.W., Suite 800
Washington, DC 20036

2. Statement of Petitioner's Interest in the Proposed Action

The TWC is an international trade association of the wood treating industry, serving more than 490 companies and associations related to the production of treated wood. TWC's members have for many years generated, used, sold, or bought NHSTWB as a legitimate fuel for energy recovery. TWC submits this petition for a national determination that this longstanding, beneficial, and environmentally sound practice constitutes combustion of a non-waste fuel and can continue without interruption.

3. Description of the Proposed Action

TWC requests that the following language be added to 40 C.F.R. § 241.4 (a):

> (5) Non-hazardous secondary treated wood biomass that is transferred from the generating site or organization to the combustion site under contractual agreements throughout its transfer. Such non-hazardous secondary treated wood biomass may also be combined with other traditional fuels or other materials listed in this section. For purposes of this section, "non-hazardous secondary treated wood biomass" includes wood treated with: waterborne borate-based preservatives, waterborne organic-based preservatives, waterborne copper-based wood preservatives (ammoniacal/alkaline copper quat, copper azole, copper HDO, alkaline copper betaine, or copper naphthenate); creosote; oilborne copper naphthenate; pentachlorophenol; or dual-treated with any of the above.

The relevant industry NAICS codes for this petition are: 321113 and 321114. The functional use code is U33.

4. Need and Justification for the Proposed Action

The proposed action is needed to redress EPA's generic conclusion that the use of non-hazardous secondary materials – including NHSTWB – for combustion is categorized as the burning of a solid waste unless otherwise determined after consideration of a petition filed under 40 C.F.R. § 241.4 (b). EPA incorporated this overall conclusion into 40 C.F.R. § 241.3 (a) with the adoption of its February 2013 final rule on Non-Hazardous Secondary Materials That Are Solid Waste.[1] To the contrary, as demonstrated below, NHSTWB is a valuable fuel that either is

[1] *Commercial and Industrial Solid Waste Incineration Units: Reconsideration and Final Amendments; Non-Hazardous Secondary Materials That Are Solid Waste*; Final Rule, 78 Fed. Reg. 9112 (Feb. 7, 2013) (February 2013 Final Rule).

not discarded or is properly processed and managed, and is legitimately used as a fuel in a combustion unit.

EPA's February 2013 final rule requires that petitioners demonstrate that the secondary material used as a non-waste fuel in a combustion unit (1) has not previously been discarded or, alternatively, has been properly processed and managed, and (2) either meets the legitimacy criteria or, after balancing the legitimacy criteria with other relevant factors, is shown not to be a solid waste when used as fuel. 78 Fed. Reg. at 9158-59. The legitimacy criteria are: (a) the secondary material is managed as a valuable commodity, and storage must not exceed reasonable time frames; (b) where there is an analogous fuel, the secondary material must be managed consistently with the analogous fuel; (c) the secondary material must produce meaningful heating value; and (d) the secondary material must contain contaminants at levels comparable to those in traditional fuels.[2] EPA recognized in its February 2013 final rule that TWC had submitted information in support of a determination that NHSTWB be added as a categorical non-waste, and that, as to one type of treated wood, creosote railroad ties, sufficient evidence had been provided that EPA expects to propose a categorical listing for these materials. 78 Fed. Reg. at 9174. TWC provides the following additional information in support of its petition for the addition of NHSTWB to 40 C.F.R. § 241.4 (a).

NHSTWB Used as Combustion Fuel Has Either Not Been Discarded or Has Been Properly Processed and Managed; Also It is Managed as a Valuable Commodity and Consistently with Traditional Fuels.

Treated wood is green, virgin wood – a material EPA recognizes as a traditional fuel – that has been treated with preservative solutions that slow its deterioration and extend its useful life in applications such as building products, railroad ties, and utility poles. After its primary useful life, NHSTWB products are in demand for their energy recovery value. For example, creosote-treated railroad ties, which are impregnated with a coal tar derivative (made up of traditional fuels) are sought-after as an alternative fuel because of their higher heat (measured as British thermal units or BTU) value, affordability, and availability. Commercial arrangements have for many years channeled NHSTWB materials to cement kilns, power plants, and other facilities, where they are handled as a valuable commodity and substitute for wood, coal, or other fossil fuels. They are managed and stored similarly to traditional fuels. The Class I railroads recycle nearly 60 percent of their used ties for energy recovery (and the remainder are largely

[2] *Identification of Non-Hazardous Secondary Materials That Are Solid Waste*; Final Rule, 76 Fed. Reg. 15456, 15551 (March 21, 2011) (March 2011 Final Rule).

recycled for other purposes).[3] Approximately 20 percent of utility poles are similarly reused for energy generation (and another 45 percent for other uses).[4]

As EPA's February 2013 final rule acknowledges,[5] TWC has previously submitted evidence to the record of substantial volumes of NHSTWB used as a valuable combustion source at a co-gen facility in central Pennsylvania that was exclusively designed to burn these materials. As the table in Attachment 1 demonstrates, over the course of more than twenty years, this facility has burned 2.3 million tons of NHSTWB as part of its intrinsic process to generate electricity, under contracts with 89 commercial entities that furnish used, treated wood for energy recovery purposes.

A second company, Zwicky Processing & Recycling, Inc., has provided information describing its facility in eastern Pennsylvania that grinds NHSTWB along with construction and demolition materials, which EPA has preliminarily concluded are not waste.[6] (See Attachment 2.) These materials, once combined, are used for combustion by cement plants, paper mills, and power generation facilities. This facility also was built specifically for these materials and, to give a sense of its current scale of operations, handled 140,000 tons of secondary NHSTWB and C&D wood during the first 10 months of 2012.

A third company has explained that its facility combusts 75% NHSTWB and 25% other forms of biomass to power its operations. A sample purchase contract entered into by this company for railroad ties used as a boiler biomass energy source was attached to TWC's February 2012 Comments in this proceeding.[7] If EPA fails to categorize these materials as non-waste, this plant could face a total shut down, without the availability of NHSTWB as a fuel source for this boiler.

TWC has also provided samples in the record of numerous executed contracts showing a variety of types of purchase agreements for NHSTWB used for electricity generation and fuel combustion, and of a "Fuel Supply Agreement covering creosote-treated materials (ties, poles,

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[3]See Comment submitted by J. Gauntt, Railway Tie Association, *Wood Crossties 2008 Benchmark Tie Disposal Survey*, Docket EPA-HQ-OPP-2003-0248-0086.

[4]Morrell, J. *Disposal and Re-use of Utility Poles in the Western United States: A Survey*, Proceedings of the American Wood Protection Ass'n., vol. 104, 268-271 (May 2008).

[5]78 Fed. Reg. at 9174.

[6]78 Fed. Reg. at 9173, *citing* 76 Fed. Reg. at 15,485.

[7]See Attachment 4 to TWC's Comments of February 20, 2012 in EPA Docket EPA-HQ-RCRA-2008-0329 (TWC February 2012 Comments).

posts, piling, and timbers) purchased by Viking Energy of Michigan as boiler fuel.[8] An additional statement notes the use of copper naphthenate NHSTWB ties as a valuable fuel, for example at the DTE plant in Wisconsin, which is permitted to burn copper naphthenate, borate, and creosote-treated wood secondary materials for energy generation. (See Attachment 3.) Further, TWC's February 2012 comments cited a statement submitted to the record by the State of Michigan's Department of Natural Resources and Environment, noting that in 2009, 16,625 tons of NHSTWB, including wood treated with creosote and pentachlorophenol, were burned for energy recovery and were eligible for renewable energy or advanced cleaner energy credits under Michigan's Clean, Renewable, and Efficient Energy Act.

Collectively, these submissions provide compelling evidence that NHSTWB is either not discarded or has been properly processed and managed, and that when used as a combustion fuel, it is regarded as a valuable commodity.

NHSTWB has a Meaningful Heating Value and is Used as Fuel in a Combustion Unit that Recovers Energy.

TWC has previously placed in the record data showing the higher BTU value of treated wood compared to that of virgin wood.[9] In short, NHSTWB has a moisture content of approximately 20 percent, compared to the 50 percent moisture content of untreated wood biomass. Wood preservatives do not reduce, and some add to, the heat value of wood. Treated wood used for fuel is typically drier than milling by-products, such as chips or bark, resulting in a higher heat value at approximately 7,000 BTU/pound (300,000 BTU/cf) for waterborne, and up to 8,000 (400,000 BTU/cf) for oilborne treated wood products.

Each Type of NHSTWB is Either Not Discarded in the First Instance or is Processed and Managed Pursuant to Proven Practices; Each Type Contains Contaminants at Levels that are Comparable to or Lower than the Traditional Fuels that the Combustion Unit is Designed to Burn, or is Functionally the Same as Its Comparable Traditional Fuel, and a Balancing of All Relevant Factors Supports Its Categorization as a Non-Waste.

[8]See Attachments 2 and 3 to TWC's February 2012 Comments.

[9]See TWC Comments of August 2, 2010 in EPA Docket EPA-HQ-RCRA-2008-0329, Table 1 (TWC August 2010 Comments).

The types of NHSTWB covered by this petition are:

(1) Wood Treated with Waterborne Borate-Based Preservatives

(2) Wood Treated with Waterborne Organic-Based or Copper-Based Preservatives

(3) Wood Treated with Creosote (oilborne)

(4) Wood Treated with Oilborne Copper Naphthenate

(5) Wood Treated with Oilborne Pentachlorophenol

(6) Wood Dual-Treated with any of the above preservatives

In the discussion below, the different forms of NHSTWB are analyzed individually.

Wood Treated with Waterborne Borate-Based Preservatives

Waterborne borate-based preservatives add no HAPs to traditional wood and contain contaminants at levels that are comparable to those of the traditional fuel that a combustion unit is designed to burn (wood). (See Table I on the following page.) Wood treated with borate-based preservatives is virtually identical to untreated wood in terms of HAP content.

In fact, EPA has already determined that borate-treated wood "meets the legitimacy criterion on the level of contaminants and comparability to traditional fuels."[10] Waterborne borate-based treated woods are equivalent to "clean construction and demolition wood," which EPA considers a traditional fuel.[11] TWC requests that EPA provide a determination for waterborne borate-based preservatives that is consistent with that for clean construction and demolition wood.

[10] 76 Fed. Reg. at 15,484.

[11] 78 Fed. Reg. at 9138.

TABLE I. HAP and Other Components in Traditional Fuels and Wood Treated with Borate Waterborne Preservatives (ppm)				
HAP Component	**Wood + Borates**	**Untreated Wood/Biomass[i]**	**#2 Fuel Oil[i]**	**Coal[i]**
Volatile metals (Hg)	1.1	1.1	0.2	3.1
Semi-volatile metals (Cd, Pb, Se)	255	255	57	241
Low-volatile metals (Sb, As, Be, Cr, Co, Mn, Ni)	16,842	16,842	3,551	1,822
Total HAP metals	**17,098**	**17,098**	**3,608**	**2,066**
Chlorine	5,400	5,400	1,260	9,080
Fluorine	128	128	14	178
Nitrogen	4,600	4,600	3,000	54,000
Sulfur	6,100	6,100	57,000	61,300
Total VOC HAP	27	27	13,745	153
Total SVOC[ii] HAP	NA[iii]	NA	8,900	NA
Total POM[iv]	**2[v]**	**2[v]**	**54,700**	**2,090**
Total known HAP[vi]	**17,127**	**17,127**	**80,953**	**4,309**

[i] Maximum values cited in EPA, *Materials Characterization Paper In Support of the Final Rulemaking: Identification of Nonhazardous Secondary Materials That Are Solid Waste Traditional Fuels and Key Derivatives* (Feb. 7, 2011) (EPA 2011a), EPA, *Contaminant Concentrations in Traditional Fuels: Tables for Comparison* (Nov. 29, 2011) (EPA 2011b).
[ii] Semi-volatile organic compounds; includes phenol, cresols, biphenyl, dibenzofuran, and quinoline.
[iii] NA = Indicates either data not available, not yet analyzed, or cannot be expressed accurately in table.
[iv] Polycyclic Organic Matter (POM) is an EPA-defined chemical group that primarily consists of polynuclear aromatic hydrocarbons (PAH) but includes some other aromatic compounds that contain heteroatoms such as N and O.
[v] Data from *J. Physics: Conference Series* 151, 012004 (2009).
[vi] HAPs listed include only those with available data.

Wood Treated with Waterborne Organic-Based Preservatives and Wood Treated with Waterborne Copper-Based Preservatives

Waterborne organic-based and copper-based preservatives likewise add no HAPS to traditional wood. The HAP metals listed in Table II are naturally occurring in untreated wood and are not introduced during the treating process. The only metal introduced during treatment with waterborne preservatives is copper, which is not a listed HAP metal.

EPA has also required consideration of chemicals the combustion of which will result in the formation of HAPs.[12] As Table II on the following page indicates, nitrogen content in the waterborne organic-based and copper-based preservatives is below the levels found in wood and other traditional fuels.

[12] *Id*., at 9139.

TWC requests that EPA provide a determination for waterborne organic-based and copper-based preservatives that is consistent with that for clean construction and demolition wood.

TABLE II. HAP and Other Components in Traditional Fuels and "End of Life" Wood Treated with Organic & Copper-Based Waterborne Preservatives[i] (ppm)

HAP Component	Copper-Based[ii]					Organic-Based[ii]		Untreated Wood[iii]	#2 Fuel Oil[iii]	Coal[iv]
	ACQ	CA	CuN-W	CX-A	KDS	PTI	EL2			
Volatile metals (Hg)	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Semi-volatile metals (Cd, Pb, Se)	255	255	255	255	255	255	255	255	255	255
Low-volatile metals (Sb, As, Be, Cr, Co, Mn, Ni)	16,842	16,842	16,842	16,842	16,842	16,842	16,842	16,842	16,842	16,842
Total HAP metals	**17,098**	**17,098**	**17,098**	**17,098**	**17,098**	**17,098**	**17,098**	**17,098**	**3,608**	**2,066**
Chlorine	5,400	5,400	5,400	5,400	5,400	5,400	5,400	5,400	1,260	9,080
Fluorine	128	128	128	128	128	128	128	128	14	178
Nitrogen	23[iv]	235[iv]	235[iv]	235[iv]	235[iv]	<235[iv]	<235[iv]	4,600	3,000	54,000
Sulfur	6,100	6,100	6,100	6,100	6,100	6,100	6,100	6,100	57,000	61,300
Total VOC HAP	27	27	27	27	27	27	27	27	13,745	153
Total SVOC[v] HAP	NA[vi]	NA	NA	NA	NA	NA	NA	NA	8,900	NA
Total POM[vii]	**2[viii]**	**2[viii]**	**2[viii]**	**2[viii]**	**2[viii]**	**2[viii]**	**2[viii]**	**2[vii]**	**54,700**	**2,090**
Total known HAP[ix]	**17,127**	**17,127**	**17,127**	**17,127**	**17,127**	**17,127**	**17,127**	**17,127**	**80,953**	**4,309**

[i] Assumes same values as in EPA 2011a and EPA 2011b.
[ii] AWPA Standard U1 abbreviations for waterborne preservative systems: ACQ = alkaline copper quaternary; CA = copper azole; CuN-W = waterborne copper naphthenate; CX-A = copper HDO; KDS = alkaline copper betaine; PTI = propiconazole + tebuconazole + imidacloprid; EL2 = DCOI + imidacloprid.
[iii] Maximum values cited in EPA 2011a and EPA 2011b.
[iv] Data from Ruddick 2013; average of all samples tested. Total Nitrogen numbers assayed in weathered ACQ-treated spruce used to estimate N content in wood treated with all Cu-based preservatives containing monoethanolamine (MEA) co-solvents. Wood treated with organic-based preservatives containing no MEA will contain an unknown but lesser amount of Nitrogen. Maximum Nitrogen content in untreated wood cited by OAQPS databases is 4600 ppm.
[v] Semi-volatile organic compounds; includes phenol, cresols, biphenyl, dibenzofuran, and quinoline.
[vi] NA = Indicates either data not available, not yet analyzed, or cannot be expressed accurately in table.
[vii] Polycyclic Organic Matter (POM) is an EPA-defined chemical group that primarily consists of polynuclear aromatic hydrocarbons (PAH) but includes some other aromatic compounds that contain heteroatoms such as N and O.
[viii] Data from *J. Physics: Conference Series* 151**,** 012004 (2009).
[ix] HAPs listed include only those with available data.

Wood Treated with Creosote (oilborne)

Wood treated with creosote is the subject of a previous petition submitted by other parties, supported by data that EPA has already considered. Based on these submissions, EPA's February 2013 final rule states that "EPA also expects to propose a categorical listing for this material."[13] While the previously submitted data are focused on creosote and creosote-boron railroad ties, they also apply to creosote-treated posts, pilings, and utility poles, as demonstrated by Table III below. TWC requests that EPA provide a categorical determination for creosote-treated ties, posts, pilings, and poles that they are non-wastes when combusted for energy recovery.

TABLE III. Estimated Concentration of Selected HAP in "End of Life" Creosote Treated Wood and Traditional Fuels (ppm)

HAP Component	Creosote-treated wood[i]	Untreated Wood[ii]	Fuel Oil[ii]	Coal[ii]
Volatile metals (Hg)	1.1	1.1	0.2	3.1
Semi-volatile metals (Cd, Pb, Se)	255	255	57	241
Low-volatile metals (Sb, As, Be, Cr, Co, Mn, Ni)	16,842	16,842	3,551	1,822
Total HAP metals	**17,098[ii]**	**17,098**	**3,608**	**2,066**
Chlorine (non-HAP)	5,400[ii]	5,400	1,260	9,080
Fluorine (non-HAP)	128[ii]	128	14	178
Nitrogen (non-HAP)	4,600[ii]	4,600	3,000	54,000
Sulfur (non-HAP)	6,100[ii]	6,100	57,000	61,300
Total VOC HAP	0.4	27	13,745	153
Total SVOC[iii] HAP	966	NA[iv]	8,900	NA
Total POM[v]	**20,130**	**2[vi]**	**54,700**	**2,090**
Total HAP[vii]	**38,194**	**17,127**	**80,953**	**4,309**

[i] Data from URS 2013. Evaluation of Used Railroad Ties Treated with Creosote for Polynuclear Organic Material (POM) which includes Polynuclear Aromatic Hydrocarbons (PAH). *Report dated January 28, 2013, prepared for* Association of American Railroads.
[ii] Maximum values cited in EPA 2011a and EPA 2011b, except where noted.
[iii] Semi-volatile organic compounds; includes phenol, cresols, biphenyl, dibenzofuran, and quinoline.
[iv] Indicates either data not available, not yet analyzed, or cannot be expressed accurately in table.
[v] Polycyclic Organic Matter (POM) is an EPA-defined chemical group that primarily consists of polynuclear aromatic hydrocarbons (PAH) but includes some other aromatic compounds that contain heteroatoms such as N and O.
[vi] Data from *J. Physics: Conference Series* 151**,** 012004(2009).
[vii] HAPs listed include only those with available data.

[13] 78 Fed. Reg. at 9174.

Wood Treated with Oilborne Copper Naphthenate

Copper naphthenate treating solution is diluted with fuel oil to make a solution of approximately 1 percent copper metal by weight. The naphthenic acid, a by-product of crude oil refining, consists primarily of long-chain hydrocarbons. It combusts in the same way as fuel oil with the same emissions and fuel value as fuel oil "traditional fuel."

The fuel oil contained in oilborne copper naphthenate NHSTWB may add 10 to 20 percent more heat value than untreated wood biomass. The fuel oil contained in copper naphthenate treated wood contains contaminants comparable to those in fuel oil, a traditional fuel, and, according to EPA's prescribed analysis, wood treated with oilborne copper naphthenate should be determined to be a non-waste when combusted in units designed to burn wood and fuel oil. (See Table IV below.)

TABLE IV. Estimated Concentration of Selected HAP in "End of Life" Copper Naphthenate (CuN) Treated Wood and Traditional Fuels (ppm)

HAP Component	CuN-treated wood[i]	Untreated Wood[ii]	Fuel Oil[ii]	Coal[ii]
Volatile metals (Hg)	1.1	1.1	0.2	3.1
Semi-volatile metals (Cd, Pb, Se)	255	255	57	241
Low-volatile metals (Sb, As, Be, Cr, Co, Mn, Ni)	16,842	16,842	3,551	1,822
Total HAP metals	**17,098[ii]**	**17,098**	**3,608**	**2,066**
Chlorine (non-HAP)	5,400[ii]	5,400	1,260	9,080
Fluorine (non-HAP)	128[ii]	128	14	178
Nitrogen (non-HAP)	4,600[ii]	4,600	3,000	54,000
Sulfur (non-HAP)	6,100[ii]	6,100	57,000	61,300
Total VOC HAP	379	27	13,745	153
Total SVOC[iii] HAP	33	**NA**[iv]	8,900	NA
Total POM[v]	**414**	*2*[vi]	**54,700**	**2,090**
Total HAP[vii]	**17,924**	**17,127**	**80,953**	**4,309**

[i] 0.08 pcf Cu & 4 pcf solution retention + 32 pcf wood @ 50% treatable volume = 0.94% w/w copper naphthenate (0.11% Cu) and 4.6% oil in total freshly treated wood mass. Wood assayed after 12 years exposure showed 35% average Cu loss (IRG/WP 00-30242); calculations assume 66% organic (diluent oil) loss based on creosote loss during service (URS report to AAR, 2013).
[ii] Maximum values cited in EPA 2011a and EPA 2011b.
[iii] Semi-volatile organic compounds; includes phenol, cresols, biphenyl, dibenzofuran, and quinoline.
[iv] Indicates either data not available, not yet analyzed, or cannot be expressed accurately in table.
[vi] Polycyclic Organic Matter (POM) is an EPA-defined chemical group that primarily consists of polynuclear aromatic hydrocarbons (PAH) but includes some other aromatic compounds that contain heteroatoms such as N and O.
[vi] Data from *J. Physics: Conference Series* 151, 012004 (2009).
[vii] HAPs listed include only those with available data.

The total HAP concentration in end-of-life copper naphthenate treated wood is slightly higher (less than 5%) than the total HAP concentration in untreated wood, but considerably less than the total HAP concentration in fuel oil. TWC requests that EPA provide a categorical determination for copper naphthenate treated wood NHSTWB that they are non-wastes when combusted for energy recovery in the same type boilers approved for creosote treated wood.

Wood Treated with Pentachlorophenol

Pentachlorophenol (penta) is a pesticide chemical manufactured by reacting phenol with chlorine. Phenol is a by-product of petroleum manufacturing. Penta is sold to wood preserving plants as either a solid block or a concentrated liquid. Solid penta is dissolved in petroleum oil, typically diesel or fuel oil grades. Liquid or dissolved-solid penta is diluted to approximately 5 to 10 percent in oil for the treatment solutions. Technical penta contains 86% pentachlorophenol with the balance other chlorinated phenols.

Penta-preserved wood contains approximately 4 pcf of fuel oil, used as a carrier for the penta in treatment. The fuel oil contained in penta-treated NHSTWB may add 10 to 20 percent more heat value than untreated wood biomass. Fuel oil is a "traditional fuel." Penta contains chlorine, but to avoid double-counting the chlorine, this has not been listed separately, as penta including the chlorine is already listed as a HAP.

The HAPS in penta-treated wood are comparable to those in the traditional fuels wood, coal, and fuel oil, except for pentachlorophenol itself, which is an EPA-listed HAP (see Table V on the following page). The total HAP concentration in end-of-life pentachlorophenol treated wood is higher (about 16 %) than the total HAP concentration in untreated wood, but considerably less that the total HAP concentration in fuel oil. Pentachlorophenol is deliberately added to the wood for its preservative properties. Its presence in no more meaningful to this type of NHSTWB's use as a legitimate fuel than the formaldehyde (also a listed HAP) in resinated wood, similarly added to the wood product for its desirable properties. In fact, the amount of pentachlorophenol in a treated wood utility pole at the end of its service life (approximately 1800 ppm) is a small fraction of the amount of formaldehyde-containing resin in a comparable unit of resinated wood used as fuel. As noted previously, energy generators have long relied on purchasing this form of biomass as an important fuel, with contracts in the record establishing these established commercial arrangements. The State of Michigan has specifically noted the legitimate use of penta NHSTWB as a clean fuel that is eligible for renewable energy or advanced cleaner energy credit under Michigan's Clean, Renewable, and Energy Efficiency Act.[14]

[14] Comments of Steven R. Silver, Chief, Solid Waste and Land Application Section, Environmental Resource Management Division, Michigan Department of Natural Resources & Environment, at 8 (Aug. 3, 2010), filed in EPA Docket No. EPA-HQ-RCRA-2008-0329.

EPA has determined that, despite the higher level of formaldehyde in resinated wood compared to the traditional fuel wood, the balance of factors favors a determination that resinated wood secondary materials are properly viewed as fuel when combusted for energy recovery.[15] Like resinated wood, penta-treated wood is a sought-after fuel, has a long track record of commercial dealings evidencing its established use for energy recovery, has a high BTU value, is clearly considered and managed as a valuable commodity, is used in plants designed specifically to use this material; and like resinated wood, disrupting this established commercial relationship would cause adverse economic – and also environmental – consequences.

Based on a balancing of the relevant factors, using the same type of balancing analysis that EPA has followed in considering resinated wood, EPA should conclude that penta-treated NHSTWB is a categorical non-waste.

TABLE V. Estimated Concentration of Selected HAP in "End of Life" Pentachlorophenol Treated Wood and Traditional Fuels (ppm)

HAP Component	Pentachlorophenol-Treated Wood[i]	Untreated Wood[ii]	Fuel Oil[ii]	Coal[ii]
Volatile metals (Hg)	1.1	1.1	0.2	3.1
Semi-volatile metals (Cd, Pb, Se)	255	255	57	241
Low-volatile metals (Sb, As, Be, Cr, Co, Mn, Ni)	16,842	16,842	3,551	1,822
Total HAP metals	**17,098[ii]**	**17,098**	**3,608**	**2,066**
Chlorine (non-HAP)	6,691[ii]	5,400	1,260	9,080
Fluorine (non-HAP)	128[ii]	128	14	178
Nitrogen (non-HAP)	4,600[ii]	4,600	3,000	54,000
Sulfur (non-HAP)	6,100[ii]	6,100	57,000	61,300
Total VOC HAP	379	27	13,745	153
Total SVOC[iii] HAP	1865	NA[iv]	8,900	NA
Total POM[v]	**414**	**2[vi]**	**54,700**	**2,090**
Total HAP[vii]	**19,756**	**17,127**	**80,953**	**4,309**

[i] 0.38 pcf pentachlorophenol & 4 pcf solution retention + 32 pcf wood @ 50% treatable volume = 0.55% w/w PCP and 5.0% oil in total treated wood mass. Wood assayed after 8 years exposure showed 66% penta loss (IRG/WP-00-30242); calculations assume 66% diluent oil loss based on creosote loss during service (URS report to AAR, 2013).
[ii] Maximum values cited in EPA 2011a and EPA 2011b.
[iii] Semi-volatile organic compounds; includes phenol, cresols, pentachlorophenol, biphenyl, dibenzofuran, and quinoline.
[iv] Indicates either data not available, not yet analyzed, or cannot be expressed accurately in table.
[v] Polycyclic Organic Matter (POM) is an EPA-defined chemical group that primarily consists of polynuclear aromatic hydrocarbons (PAH) but includes some other aromatic compounds that contain heteroatoms such as N and O.
[vi] Data from *J. Physics: Conference Series* 151, 012004 (2009).
[vii] HAPs listed include only those with available data.

[15] 78 Fed. Reg. at 9155-58.

TWC requests that EPA provide a categorical determination for pentachlorophenol NHSTWB that they are non-wastes when combusted for energy recovery in the same type boilers approved for creosote treated wood.

Dual-treated Wood

Combinations of preservatives may be used for some treated wood products. The analysis does not differ from the foregoing discussion of each of these individual treatment chemicals. Like the underlying NHSTWB formulations, combined treatments should also be the subject of a categorical non-waste determination.

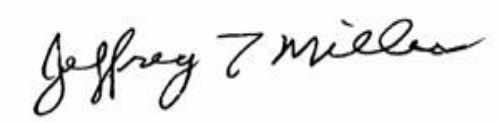
TWC requests that EPA provide a categorical determination for dual waterborne treated wood that is consistent with that for clean construction and demolition wood. TWC requests that EPA provide a categorical determination for dual treated NHSTWB using an oilborne preservative that they are non-wastes when combusted for energy recovery in the same type boilers approved for creosote treated wood.

Conclusion

Unless EPA properly classifies these materials as non-waste, they will be diverted to landfills, resulting in (1) the use instead of fossil fuels with higher net greenhouse gas emissions (GHG), and (2) the likelihood that landfilled treated wood will eventually break down to produce methane, with twenty times the comparable impact on climate change as carbon dioxide.[16]

For all the reasons set forth above, TWC requests that EPA issue a categorical determination that the specified non-hazardous secondary treated wood biomass materials are not a waste**.**

Respectfully submitted,



Jeffrey T. Miller
President & Executive Director

Cc: George Faison (Faison.george@Epa.gov)

[16] See, EPA, *Greenhouse Gas Emissions*, http://www.epa.gov/climatechange/ghgemissions/gases/ch4.html.