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**Technical Guide 146  
Guide for Handling, Reuse, and Disposal  
of Chemically Treated Wood Material**

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## PREFACE

The heavy duty wood preservatives, pentachlorophenol (PCP), creosote, and chromium copper arsenate (CCA), have been extensively applied as pesticides to wood and wood products to extend the life of wood by protecting it from degradation from fungi, insects, weather, and moisture. These wood products are often referred to as chemically or pressure treated wood products. Studies have since shown that these heavy duty wood preservatives may pose a risk to human health and the environment due to the toxicity associated with these chemicals.

In accordance with the Fungicide and Rodenticide Act (FIFRA) and the Pesticide Registration Improvement Act of 2003, the U.S. Environmental Protection Agency (EPA) completed its reregistration eligibility decisions (RED) for these heavy duty wood preservatives in September 2008 to reassess the potential hazards arising from the currently registered uses of these pesticides; determine the need for additional data on health and environmental effects; and determine whether or not the pesticide meets the “no unreasonable adverse effects” criteria of FIFRA.

In general, the EPA has determined that these compounds contribute benefits to society and are eligible for reregistration provided the mitigation measures and associated label changes identified in the REDs are implemented and required data are submitted. As a result of the RED, the EPA has identified these heavy duty wood preservatives as restricted use products (RUP) that are only available for specific use by certified applicators. As RUPs, these wood preservatives are no longer allowed for residential or play area use. Currently, the only registered use for these heavy duty pesticides is as wood preservatives.

Due to the toxicity associated with these chemical preservatives, handling, reuse and disposal issues arise when chemically treated wood items are no longer viable for their original use. This technical guide (TG) is intended for use as an aid for determining proper handling, reuse, and disposal practices for chemically treated wood items generated by Department of Defense (DOD/DoD) activities, primarily of wooden pallets and ammunition boxes, railroad ties and crossarms, utility poles, and construction and demolition debris since these items may contain Federal or State regulated hazardous constituents depending on the chemical wood preservative used (i.e., arsenic, chromium, copper, cresols (constituents of creosote), polycyclic aromatic hydrocarbons (PAHs), and PCP).

Though the EPA does not classify treated wood as a hazardous waste under Federal regulations, Department of the Army (DA) and DOD facilities must continue to manage treated wood in accordance with all applicable State and local regulations and policy. Overall, Federal, State, local, DA and DOD regulations and policy promote the reuse and recycling of chemically treated wood materials in an effort to conserve natural resources and reduce human and environmental health risk associated with the disposal. Reuse and recycling also reduces treatment/disposal costs for DOD facilities.

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**Table of Contents**

**1. PURPOSE ..... 1**

**2. APPLICABILITY ..... 1**

**3. REFERENCES ..... 1**

**4. ACRONYMS ..... 1**

**5. BACKGROUND ..... 1**

**6. PRESERVATIVES OF CONCERN ..... 2**

    6.1 Pentachlorophenol ..... 2

    6.2 Creosote ..... 2

    6.3 Chromated Copper Arsenate ..... 3

**7. OCCUPATIONAL EXPOSURE ..... 3**

    7.1 Exposure Routes ..... 5

        7.1.1 Inhalation ..... 5

        7.1.2 Dermal ..... 5

        7.1.3 Ingestion ..... 5

    7.2 Signs of Exposure ..... 6

**8. HANDLING CHEMICALLY TREATED WOOD ..... 6**

    8.1 Personal Protective Equipment ..... 7

    8.2 Personal Hygiene ..... 8

**9. APPLICABLE LAWS, POLICY, AND GUIDANCE FOR CHEMICALLY TREATED WOOD MATERIAL ..... 8**

    9.1 Federal ..... 9

        9.1.1 Arsenical-Treated Wood ..... 9

        9.1.2 Pentachlorophenol and Creosote-Treated Wood ..... 9

    9.2 State and Local ..... 10

    9.3 OCONUS ..... 10

**10. CHEMICALLY TREATED WOOD REUSE, RECYCLING AND DISPOSAL ..... 10**

    10.1 Storage ..... 11

    10.2 Reuse ..... 11

    10.3 Disposal ..... 12

        10.3.1 Waste Determination ..... 13

        10.3.2 Turn-in ..... 14

        10.3.3 Incineration ..... 16

**APPENDIX**

**A - REFERENCES..... A-1**

**B - STATE TREATED WOOD GUIDANCE ..... B-1**

**Glossary..... Glossary-1**

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## **GUIDE FOR HANDLING, REUSE, AND DISPOSAL OF CHEMICALLY TREATED WOOD**

### **1 PURPOSE**

This technical guide (TG) provides information on the handling, reuse, and disposal of wood and wood products that have been treated with chemical preservatives that have been determined to be toxic to human health and the environment, specifically creosote, pentachlorophenol (PCP), and chromated copper arsenate (CCA) (i.e., arsenical pesticides).

### **2 APPLICABILITY**

The information in this TG pertains to chemically preserved wood materials generated from Department of Defense (DOD/DoD) activities. Chemically treated wood generated by DOD activities consists primarily of wooden pallets and ammunition boxes, rail road ties and crossarms, utility poles, and construction and demolition debris. This guide is intended for use as an aid for determining correct handling, reuse, and disposal practices for chemically treated wood material, and is not intended for use in determining management practices for wastes generated from the application of these chemical preservatives.

### **3 REFERENCES**

A list of references used to prepare this TG is provided in Appendix A.

### **4 ACRONYMS**

A list of acronyms used in this TG is provided in the Glossary.

### **5 BACKGROUND**

Historically, chemical preservatives (i.e., pesticides) have been widely used to extend the life of wood by preventing rot and decay caused by insects, fungi, weather, and moisture. Through the process of pressure treatment, chemical preservatives are forced deep into the wood's cellular structure creating a chemical barrier making the wood resistant to deterioration. Studies have since shown that these chemical wood preservatives, referred to as heavy duty wood preservatives, are toxic to human health and the environment. Currently, these chemical preservatives are listed as U.S. Environmental Protection Agency (EPA) restricted use products (RUP) and are only available for specific use by certified applicators. As RUPs, these wood preservatives

are no longer allowed for residential or play area use. Chemically treated wood material such as telephone poles, railroad ties, and pressure treated lumber can contain arsenic, chromium, copper, cresols (constituents of creosote), polycyclic aromatic hydrocarbons (PAHs), and/ or PCP (to include dioxins/furans) depending on the wood treatment method used. Due to the toxicity associated with these chemicals, handling, reuse, and disposal issues arise when chemically treated materials are no longer viable for their original use.

## **6 PRESERVATIVES OF CONCERN**

### **6.1 Pentachlorophenol**

Pentachlorophenol, an oil-borne preservative commonly referred to as penta or PCP, is a colorless, crystalline (or powder) synthetic compound once widely applied as both an indoor and outdoor-use pesticide due to its effectiveness as a biocide. Penta was the most common wood preservative applied to treat wood material used for utility poles, crossarms, railroad ties, wood pilings, fence posts, and lumber for construction. Due to potential human toxicity, penta was prohibited from indoor use in 1984 and became classified as a RUP in 1986.

Currently, penta is only registered for use as a wood preservative and is predominantly used to treat utility poles and railroad ties (EPA, 2008a). Penta formulations may also contain the chemicals hexachlorobenzene (HCB), chlorinated dibenzodioxins, and chlorinated dibenzofurans as contaminants formed during the manufacturing process. These chemicals may also present a human health risk to handlers of penta-treated wood due to their toxicity.

Penta was once widely used by the Department of the Army (DA) for preserving ammunition boxes and pallets. While the DOD is no longer procuring penta-treated wood, existing stocks may be significant at Army Ammunition Depots.

### **6.2 Creosote**

Creosote, is a mixture of chemicals obtained from the high temperature distillation of coal tar and is the most common product used to preserve wood in the United States. Creosote primarily consists of a mixture of PAHs (naphthalene and anthracene) and phenolic compounds (o-cresol, m-cresol, and p-cresol, phenol, and xylenols). Creosote is a thick-oily, black to amber colored liquid that is primarily applied to utility poles and railroad ties as a fungicide, insecticide, miticide, and sporicide to prevent decay and extend the life of the wood. Other creosote-treated wood products include



decking, construction lumber, pilings, piers and docking material. Information provided in this TG pertains to the coal tar creosote only, and should not be confused with wood tar creosote, the primary ingredient in “liquid smoke” used to add a smoked flavor to meat.

Creosote is a RUP, registered for commercial use by certified applicators only, and has no registered residential use (EPA, 2008b).

### **6.3 Chromated Copper Arsenate**

Chromated copper arsenate (CCA) is a waterborne inorganic pesticide used extensively as a wood preservative to make it resistant to attack by termites and fungi that cause decay. The CCA is composed of: copper, which acts as a fungicide; arsenate, a form of arsenic, which is an insecticide and chromium, which binds the ingredients to the wood. Other CCA wood preservative mixtures include ammoniacal copper arsenate (ACA) and ammoniacal copper zinc arsenate (ACZA). Preservatives such as ACZA and ACA are used for specialized applications or in cases where wood penetration by CCA chemicals cannot be achieved (e.g., ACA and ACZA are used on large dimension wood products made from hard-to-treat wood species such as Douglas Fir). The CCA-treated lumber, also known by the trade name Wolmanized<sup>®</sup>, has a characteristic green tinge; however, as the wood weathers it becomes harder to distinguish from untreated wood. The majority of wood sold for outdoor use (i.e., decks, playground equipment, picnic tables, garden-bed borders and docks) in the United States between 1975 and 2003 was CCA-treated lumber.

The soil beneath and adjacent to CCA-treated wood structures has been shown to be contaminated by arsenic, chromium, and copper due to these metals being leached from CCA-treated wood by rainwater and weathering. However, soil under decks coated with a waterproof sealant had lower concentrations of these metals (Agency for Toxic Substances and Disease Registry (ATSDR) (ATSDR, 2011).

Though CCA-treated wood also contains chromium and copper, research indicates that exposure to arsenic in the wood poses the greatest potential health risk. CCA became a RUP (EPA, 2008c).

## **7 OCCUPATIONAL EXPOSURE**

The DOD personnel are primarily exposed to heavy duty wood preservatives during the storage, transport, reuse, and disposal of chemically treated wood material or through contact with chemically treated outdoor wood structures. Therefore, for the purpose of this TG, discussion of occupational exposures to chemically treated wood material will be limited to post application scenarios.

Occupational exposures occur when workers are exposed to toxic substances in the workplace at concentrations exceeding the worker permissible exposure level (PEL), which is the threshold limit a person working an 8-hour shift can be exposed to a chemical without suffering ill effects.

The Occupational Safety and Health Administration (OSHA<sup>®</sup>) is the agency responsible for setting and enforcing the PELs for hazardous substances in air that are protective of worker health and safety in the workplace. Twenty-seven states also have OSHA-approved State occupational safety and health plans covering private sector, State and local government employees. Occupational health and safety plans in four of these states (Connecticut, Illinois, New Jersey, and New York) cover public sector (State and local) employees only. Employees not covered by State occupational health and safety plans are covered by OSHA. The OSHA and State PELs for hazardous substances in the workplace can be found at <https://www.osha.gov/dsg/topics/pel/>.

The OSHA has set the following PELs to be protective of worker health and safety in the workplace. Note: a State-run OSHA program may have more stringent exposure limits.

- Penta: OSHA PEL of 0.5 milligrams per cubic meter ( $\text{mg}/\text{m}^3$ ) in workplace air during an 8-hour shift over a 40-hour workweek (ATSDR, 2001).
- Creosote (coal tar pitch volatiles): OSHA PEL of  $0.2 \text{ mg}/\text{m}^3$  in workplace air during an 8-hour shift over a 40-hour workweek. [Note: National Institute for Occupational Safety and Health (NIOSH) considers coal tar, coal tar pitch, and creosote to be coal tar products.] NIOSH has also recommended an occupational exposure limit for coal tar products of  $0.1 \text{ mg}/\text{m}^3$  for PAHs for a 10-hour workday over a 40-hour workweek (ATSDR, 2002).
- Arsenic (CCA treated wood): OSHA PEL  $0.01 \text{ mg}/\text{m}^3$ , or 10 micrograms per cubic meter ( $\text{ug}/\text{m}^3$ ) for arsenic inorganic compounds, based on an 8-hour period (ATSDR, 2007).
- Chromium (CCA treated wood): OSHA PEL of  $1 \text{ mg}/\text{m}^3$  for chromium metal and insoluble salt in workplace air during an 8-hour period. The NIOSH REL has also recommended chromium, metal, chromium (II), and chromium (III) compounds of  $0.5 \text{ mg}/\text{m}^3$ , based on an 8-hour period (ATSDR, 2012).

## 7.1 Exposure Routes

Occupational exposures may occur when these chemical preservatives enter the body through inhalation, ingestion or dermal contact from activities that involve the handling of chemically treated wood material. For DOD personnel, entering an enclosed area and moving ammunition boxes provides the greatest potential for occupational exposure. Other exposures may result from cutting, sanding, and chipping activities associated with the reuse and recycling of serviceable chemically treated material.

### 7.1.1 Inhalation

- Vapor. The vapor pressure of these heavy duty preservatives is quite low. Therefore, inhalation of these chemicals in the vapor state is unlikely. However, the potential for vapor exposure is heightened in enclosed spaces during periods of hot weather when increased volatilization occurs (e.g., ammunition storage magazine).
- Dust/Crystals. Airborne dust/crystals are dispersed into the air during handling and transport of chemically treated wood (e.g., dust settled on the floor that is dispersed when moving pallets/ ammunition boxes).
- Sawdust/Wood Dust. Inhalation of sawdust/wood dust during the cutting/sanding/chipping of chemically treated wood during reuse and recycling activities.

### 7.1.2 Dermal Absorption

Direct contact with crystalline penta or with tacky penta-treated wooden surfaces, arsenical-treated wood or creosote-treated wood can result in entry of these chemicals of concern into the body resulting in dermal rash and/or severe irritation of the skin. This exposure pathway can be minimized through avoiding frequent or prolonged skin contact with chemically treated wood material and with the use of appropriate personal protective equipment (PPE) as discussed in Section 8.1.

### 7.1.3 Ingestion

Eating or smoking in work spaces or after contact with chemically treated products can result in ingestion of these chemicals of concern. Children playing on playgrounds constructed of chemically treated wood may also be susceptible to ingestion if the equipment and underlying soil are not maintained properly (e.g., application of sealant annually and maintain clean soil/ground cover).

## 7.2 Signs of Exposure

Occupational chemical exposures can result in "acute" or "chronic" health effects. "Acute" effects usually occur rapidly as a result of short-term exposures, and are of short duration. "Chronic" effects generally occur as a result of long-term exposure, and are of long duration. Though the levels of chemicals present in pressure treated wood are too low to cause acute health effects, prolonged exposure should be avoided to minimize potential long-term health effects.

The DOD activities involving chemically treated wood material are more likely to result in exposure to small amounts of these chemicals over prolonged periods of time. Signs of possible exposure to heavy duty wood preservatives may include:

- A pungent odor or irritation of the mucous membranes (eyes, nose, or throat) indicating exposure to penta dust or vapor.
- Under warm temperatures or enclosed storage conditions, volatilized penta or creosote may cause respiratory distress and lung, nose, throat, or eye irritation.
- Sawdust inhalation can cause nasal irritation and bleeding, inflammation of the sinuses, wheezing, prolonged colds, and decreased lung function.
- Dermal contact can cause blistering, peeling, reddening of the skin, or skin rash.

## 8 HANDLING CHEMICALLY TREATED WOOD

Though chemically treated wood that is properly preserved and dried represents minimal safety, health, or environmental hazards, activities related to the storage, handling, reuse and disposal of these items may pose a risk to worker health and safety.

Wood or wood products that have been treated with a hazardous chemical covered by the OSHA Hazardous Communication Standard (HCS), and wood which may be sawed or cut, generating dust, must be included in the OSHA hazard communication program in accordance with 29 Code of Federal Regulations (CFR) 1910.1200 (b)(6)(iv) to inform employees of the occupational exposure hazards associated with handling these materials. The OSHA HCS requires employers develop a written hazard communication program to inform employees of potential hazards in the workplace and protective measures used to reduce exposure hazards. In areas where DOD activities

include the storage and handling of chemically treated wood material, an effective hazard communication program would consist of:

- A written program identifying employee training on the chemical and physical hazards identified in the workplace or work activity.
- Training on accessing and utilizing material safety data sheets (MSDS) to identify potential hazards and safe work practices associated with handling of these materials.
- Providing access to Consumer Information Sheets developed by the wood preserving industry in coordination with the EPA.
- Labeling, tagging, and marking individual treated wood items or providing written documentation in lieu of labeling each individual item according to the label or warning requirements of 29 CFR 1910.1200 (f)(4).

When deemed necessary, a safety officer or other qualified person with the necessary expertise should conduct a work activity hazard assessment to identify (a) occupational exposures that may be harmful to worker health and safety and (b) PPE needed to minimize workplace hazards. The OSHA PPE standard 29 CFR 1910 Subpart I should be utilized in selecting the appropriate PPE needed to control or minimize workplace hazards when engineering or work practice controls (e.g., mechanical ventilation, conduct activities outside) cannot be implemented.

### **8.1 Personal Protection Equipment**

Personnel should consult the pressure treated wood MSDS to determine the PPE best suited for the specific chemical preservative and type of handling activity. For each of the heavy duty wood preservatives, the following PPE is typically used to reduce worker exposure during treated wood handling activities:

- Gloves. Nitrile rubber, or gloves otherwise impervious to all chemical preservative formulations, or leather-palmed gloves when handling properly treated and dried wood. Note: perspiration build-up may allow chemicals to permeate through leather gloves. Therefore, only dry leather-palmed gloves should be worn.
- Eye Protection/Dust Mask. Industrial goggles/safety glasses and a NIOSH-approved or better dust mask when handling wood with visible crystals of penta or when generating wood dust. Ensure compliance with OSHA PPE standard for eye and face protection (29 CFR 1910.133).

- **Clothing.** Wear long-sleeved shirts, long pants or coveralls that are laundered prior to each use. Launder clothing worn while handling treated wood separately from other protective clothing to reduce the possibility of cross-contamination. Launder work clothes separately from household laundry.
- **Respiratory Protection.** Adequate ventilation should be used to reduce airborne chemical preservative concentrations to levels below the OSHA PELs and NIOSH recommended standards (e.g., saw, sand, and machine chemically treated wood outdoors, when possible). When adequate ventilation is not practical, appropriate and approved respiratory protection should be selected by and used under the direction of a trained health and safety professional according to The Army Respiratory Protection Program Army Regulation (AR) 11-34 (DA, 2013) and OSHA regulation 29 CFR 1910.34.

## 8.2 Personal Hygiene

The following good personal hygiene practices are essential to reducing or eliminating personnel exposure when handling chemically treated wood materials.

- Immediately wash skin that contacts chemically treated material.
- Wash hands before eating, drinking, smoking, or using toilet facilities.
- Wash all exposed areas of the body at the end of each workday.
- Do not eat, drink, or smoke in the work area.
- Launder work clothes separately from household clothing.

## 9 APPLICABLE LAWS, POLICY, AND GUIDANCE FOR CHEMICALLY TREATED WOOD

It is DOD policy to manage, store, handle, and dispose of hazardous material and/or regulated waste according to all applicable laws and regulations. The Defense Logistics Agency (DLA) Disposition Services should be consulted to determine appropriate and applicable State and local laws for the proper reuse and disposal of chemically treated wood. The DLA will determine whether items are eligible to receive reutilization, transfer, donation (RTD) or disposal processing according to the DoD Defense Materiel

Disposition Manual (M) 4160.21-M 10.1-25 (DoD, 1997). Ammunition boxes, wood pallets, railroad ties, utility poles, and construction debris are the most common sources of chemically treated material generated from DOD activities.

## **9.1 Federal**

Federal guidance for managing chemically treated wood is dependent upon the type of chemical used in the preservation process (i.e., CCA, penta/PCP, or creosote treated wood). Federal regulations do not classify chemically treated wood or wood products as hazardous waste (HW) based on the Resource Conservation and Recovery Act (RCRA) solid waste exclusion and analytical testing discussed below. Currently, EPA recommends disposal of chemically treated wood as a nonhazardous solid waste by (a) incineration in a commercial or industrial incinerator or (b) burial in a properly operated, permitted sanitary landfill. However, the EPA recommends that generators contact their State and local authorities as states may have more stringent policies or regulations concerning the disposal of chemically treated wood.

### **9.1.1 Arsenical-Treated Wood (CCA)**

Arsenical-treated wood or wood products that fail the test for the Toxicity Characteristic for Hazardous Waste Codes D004 through D017 and which are not a hazardous waste for any other reason are subject to the RCRA exclusion for material that is not solid waste if the waste is generated by persons who utilize the arsenical-treated wood and wood product for these materials' intended end use" as specified by 40 CFR 261.4 (b)(9). Arsenical-treated wood or wood products subject to this exclusion is not a solid waste, and thus not a HW. However, this exclusion does not extend to arsenical-treated wood used to produce wood mulch as this is not the "materials' intended end use". Therefore, wood mulch produced from CCA-treated wood is not exempt from regulation as hazardous waste under 40 CFR 261.4 (b)(9) (EPA, 2004a and 2004b). This exclusion also does not apply to penta or creosote-treated wood.

### **9.1.2 Pentachlorophenol and Creosote-Treated Wood**

Solid wastes containing pentachlorophenol and creosote may be regulated as RCRA characteristic or listed wastes. Regulations pertaining to the management and disposal of pentachlorophenol and creosote RCRA listed wastes (F or K-listed waste) will not be discussed in this TG as DOD activities do not generate these waste streams.

Solid waste containing the chemical preservatives pentachlorophenol or cresol (creosote) may exhibit the characteristic of toxicity if Toxicity Characteristic Leaching Procedure (TCLP) tests indicate that concentrations exceed the regulatory levels for these contaminants as specified in 40 CFR 261.4 Table 1. Solid waste containing

pentachlorophenol concentrations above 100 milligrams per liter (mg/L) (D037), or cresol concentrations above 200 mg/L (D023 thru D026), are classified as RCRA characteristic hazardous wastes. However, EPA recognizes that TCLP testing has consistently demonstrated that penta and creosote-treated wood do not exhibit the RCRA characteristic of toxicity and is; therefore, not a HW under Federal regulations (EPA, 2008a and 1986).

## **9.2 State and Local**

Chemically treated wood regulations and guidance vary by State. State regulations and policy may: follow the Federal guidance in determining chemically treated wood is not a RCRA characteristic waste; restrict the type of landfill to which chemically treated wood may be disposed; regulate as a State Hazardous, Dangerous, or Special Waste; allow reuse and recycling; or follow other State specific requirements.

A brief description of current State disposal requirements for chemically treated wood is provided in Appendix B. These listings are solely provided to depict the variation in State disposal requirements and are not intended for use in determining final State and local requirements for treated wood disposal as such requirements are often subject to change. Generators should contact their installation environmental coordinator, local DLA servicing authority, or State and local regulatory authorities to determine proper treated wood management and disposal practices.

## **9.3 Outside the Continental United States**

The servicing DLA Disposition Services should be contacted to determine disposition requirements for chemically treated wood generated at installations located Outside the Continental United States (OCONUS). Additionally, the Final Governing Standards for the host nation, host nation laws, or the DOD Overseas Baseline Guidance Document may also be consulted to determine chemically treated wood disposition requirements at OCONUS locations.

## **10 TREATED WOOD STORAGE, REUSE, AND DISPOSAL**

Generators must determine whether the chemically treated wood items no longer utilized are serviceable or unserviceable. Chemically treated wood that is serviceable may be reused or recycled according to Federal, State, and local requirements and guidance. Unserviceable chemically treated wood will require disposal according to State, local, DA, and DOD requirements. Generators should contact their installation environmental coordinator or local DLA servicing authority to determine proper reuse or disposal requirements.



The DLA Disposition Services is responsible for disposal of hazardous waste for the DOD according to DoD Instruction 4715.6, Environmental Compliance (DoD, 1996). The local servicing DLA Disposition Services should be contacted to determine reuse, turn-in, and disposal requirements and procedures for chemically treated wood material. Types of chemically treated wood turned-in to the DLA may include pallets, railroad ties, pilings, piers, dock materials, decking, construction lumber, and utility poles.

### **10.1 Storage for Reuse or Determining Disposition**

- Segregate wood items treated with heavy duty wood preservatives from clean wood.
- Store in a manner as to prevent chemicals from leaching into the ground surface or migrating off-site (e.g., store items on a covered, nonporous, or sealed surface).
- Store in a well-ventilated place away from incompatible materials (i.e., creosote-treated wood is combustible, keep away from heat and sources of ignition).
- Store in a cool, dry place to prevent or minimize volatilization of chemical preservatives.

### **10.2 Reuse**

Chemically treated wood removed from its initial use that has not deteriorated may retain enough of its original characteristics for reuse. Chemically treated wood reused in a manner consistent with its intended use is not a solid waste. Common reuse of chemically treated wood includes fence posts, rails, lighting poles, landscape timber, and parking lot bumper guards.

Worker exposure to toxic fumes and particulate matter is of primary concern during chemically treated wood reuse and recycling processes (i.e., comminuting, sawing, and sanding). Utilize mechanical engineering, ventilation, and appropriate PPE during handling and recycling processes to minimize worker exposure hazards. Due to the potential for toxic chemical release, reuse/recycling of chemically treated wood should NEVER include:

- Reuse where the wood will come into direct or indirect contact with humans or animals, human or animal food and drinking water supplies, garden boxes, beehives, or children play areas.
- Structural use inside homes, on decks, in playground equipment.

- Making furniture.
- Firewood or other fuel source not according to Federal, State, or local regulations.
- Shredded or chipped for compost, mulch or fill as toxic chemicals may be released.
- Do not use CCA-treated wood for uses other than its intended use (40 CFR 261.4 (9)).

The EPA does not recommend replacing or removing existing structures made with CCA-treated wood or the soil surrounding those structures (EPA, 2008d). Implement the following precautions to decrease the likelihood of exposure to CCA:

- Apply a sealant at least every 2 years. Oil or water-based stains that can penetrate wood surfaces are preferable to products such as paint. This is because paints and other film-formers can chip or flake, requiring scraping or sanding for removal which can increase a consumer's exposure to arsenic. Use a coating which is clearly visible after application to make wear more apparent.
- Periodically inspect coatings for wear. Inspecting the coating will determine if another application of the coating is required.

Ensure that all chemically treated wood items that are intended for resale or recycling through DLA Disposition Services or other installation reuse and recycling program contain any appropriate or required precautionary statements concerning treated wood reuse (See section 10.3.2).

### **10.3 Disposal**

Reuse, recycling, and disposal of chemically treated wood should be addressed in the Installation Solid Waste Management Plan (ISWMP). The RTD and disposal activities must comply with applicable Federal, State, and local environmental laws and regulations, including the RCRA, which requires "cradle to grave" management of hazardous property. Depending on State and local regulations and policy, chemically treated wood may be managed as:

- Construction and demolition (C & D) debris disposed of in a C & D or rubble landfill.

- Solid Waste disposed of in a municipal solid waste landfill.
- Hazardous Waste treated or disposed of in hazardous waste landfill.
- Special Waste typically disposed of in a lined landfill.
- Reuse and Recycling in line with original intended use.
- Incinerated or Burned for Fuel Recovery in permitted units where allowed.

A table identifying current State and local guidance for chemically treated wood is provided in Appendix B. This information is provided for reference purposes only, and should be confirmed prior to treated wood disposal as State and local policy is often subject to change.

### **10.3.1 Waste Determination**

Chemically treated wood can be disposed of in general refuse in states that follow Federal regulations and guidance for this waste stream. However, in states with more stringent and restrictive laws and policy for treated wood disposal, generators' knowledge or laboratory analysis may be required to demonstrate whether treated wood is a RCRA or State characteristic hazardous waste. The EPA SW-846 TCLP test Method 1311 or other applicable State criteria must be used for determining whether a waste exhibits the characteristic of toxicity<sup>1</sup>.

With confirmation from State regulatory authorities, the following research may be used to support “generator knowledge” that penta and creosote-treated wood is not a hazardous waste:

- Electric Power Research Institute (EPRI, 1991) determined that TCLP analysis of penta and creosote-treated wood does not exceed regulatory levels for toxicity.
- U.S. Army Environmental Hygiene Agency (AEHA, 1991) determined that penta-treated wood does not exceed TCLP for penta.
- Environmental Chemistry Laboratory (California Environmental Protection Agency ((CALEPA), 2008) determined creosote treated wood is not a hazardous waste.

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<sup>1</sup> California EPA criteria and extraction methods for determining characteristic of toxicity are more rigorous than RCRA criteria.

Any type of treated wood that has been painted or contaminated with any other constituent that may be hazardous is subject to a hazardous waste determination. Treated wood waste that has been determined to be a hazardous waste must be managed according to Federal, State, and local regulations.

### **10.3.2 Turn-in**

When chemically treated wood products are palletized for turn-in to DLA, the generating (turn-in) activities should ensure that any available chemically treated pallets are used for this purpose. If chemically treated pallets are not available, generating activities are encouraged to use the servicing DLA as a possible source for treated pallets before using non-treated standard pallets. The use of chemically treated wood pallets prevents the inadvertent and unnecessary expense for disposal of non-treated pallets on service contracts. Prior to turn-in, ensure that chemically treated wood waste is stored such that toxic chemicals are not released due to conditions of exposure to excessive heat and precipitation.

Chemically treated wood items turned in to DLA Disposition Services shall receive RTD processing in accordance with the DoD Defense Materiel Disposition Manual 4160.21-M (DoD, 1997) and the Defense Reutilization and Marketing Service (DRMS)-I 4160.14 Section 3, Special Processing (DRMS, 2013) for property requiring unique or special handling. DoD 4160.21-M lists the detailed guidance for disposition and disposal of items requiring special handling. It is recommended that generators coordinate turn-in of these items with servicing DLA Disposition Services' site personnel as property requiring special handling oftentimes requires additional instructions and/or certifications to accompany the DD Form 1348-1A, Issue Release/Receipt Document. These items include railroad ties, pilings, piers, dock materials, decking, construction lumber, as well as telephone and utility poles. Such chemically treated wood material has potential reuse as fence posts, rails, lighting poles, landscape timber, and parking lot bumper guards.

Every RTD action involving chemically treated wood material must include proper turn-in documentation and warning statements in accordance with DRMS-I 4160.14 Section 3, Special Processing. Proper turn-in documentation, to include DD Form 1348-1A, should be submitted either electronically or to the local servicing DLA Disposition Services.

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74 Washington Ave  
Battle Creek, MI 49037-3092***

**Toll Free: 1-877-DLA-CALL or DSN: 661-7766, Commercial/FTS (269) 961-7766**

The following warning statements and instructions for RTD processing are provided for general awareness only and are subject to change. Therefore, proper management requires that the most current Federal, State, local, DoD and DLA regulations, guidance and instructions must be consulted prior to turn-in and disposal of wood material treated with heavy duty wood preservatives. (DRMS 2013).

**PCP-TREATED PROPERTY.**

*The listed property has been (or may have been) treated with varying amounts of chemical preservatives. The amount of residual pentachlorophenol (PCP) will vary because of the porosity of the property. The following precautions should be taken while handling the property to minimize the possibility of allergic reactions such as skin rashes. Gloves and aprons or rubber, vinyl or other nonporous materials should be worn. Because of the vaporization potential of PCP, treated property should not be burned. Cutting, sanding, and planeing of treated property is not recommended. However, when disturbing the property in any way, the following precautions should be taken:*

- o *Protective clothing such as gloves, aprons, coveralls, eye protection, and boots should be worn.*
- o *Adequate ventilation should be made available so as to remove particles away from the operator's breathing zone.*
- o *Respirators of the type to capture and remove pentachlorophenol fumes should be available at all workstations. (These will be used on a case-by-case basis. As appropriate, consultations for usage needs will be conducted with local Industrial Hygienist).*
- o *A vacuum system should be available to pick up wood particles.*
- o *Recipient agrees to include the above warning in any subsequent release of property.*

**Wooden Ammunition Boxes will contain the following:**

- o *The state agency acknowledges the following warning and certifies that the warning will be made known to any subsequent recipient of the property:*

***"WARNING: The wood in the ammunition boxes of the items listed herein has been (or may have been) treated with varying amounts of chemical preservatives. The amount of residual pentachlorophenol (PCP) will vary because of the porosity of wood. The following precautions should be taken while handling the boxes to minimize the possibility of allergic reactions such as skin rashes. Gloves and aprons of rubber vinyl, or other nonporous materials should be worn. Because of the vaporization potential of PCP, treated wood should not be burned. Cutting, sanding and planeing of treated wood are not recommended. However, when disturbing the wood in any way such as this, the following precautions should be taken: (1) Protective clothing such as gloves, aprons, coveralls, eye protection and boots should be worn; (2) adequate ventilation should be made available so as to remove particles away from the operator's breathing zone; (3) respirators of the type to capture and remove pentachlorophenol fumes should be available at all***

***work stations; and (4) a vacuum system should be available to pick up wood particles. Recipients agree to include the above warning in any subsequent resale or transfer of ownership of these boxes."***

***SIGNED***

***DATE (Authorized Donee Representative)***

### **10.3.3 Incineration**

Chemically treated wood is prohibited from open burning and may never be burned in open fires, stoves, fireplaces, or residential boilers due to the release of toxic chemicals in smoke and ash (EPA, 2008d).

Incineration of penta and CCA-treated wood may be allowed in permitted commercial or industrial incinerators only in accordance with Federal, State and local regulations. Creosote-treated wood may be burned for fuel in some states. Contact State and local regulatory authorities to determine whether incineration of chemically treated wood is permissible.

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## APPENDIX A

### REFERENCES

- ATSDR. 2001. Agency for Toxic Substances and Disease Registry. Division of Toxicology. Toxicological Profile for Pentachlorophenol. CAS# 87-86-5. Atlanta, GA. September 2001 with Addendum. <http://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=402&tid=70>.
- ATSDR. 2002. Agency for Toxic Substances and Disease Registry. Division of Toxicology. Toxicological Profile for Creosote. CAS#: Wood Creosote 8021-39-4; Coal Tar Creosote 8001-58-9; Coal Tar 8007-45-2. Atlanta, GA. September 2002, with Addendum. <http://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=66&tid=18>.
- ATSDR. 2007. Agency for Toxic Substances and Disease Registry. Toxicological Profile for Arsenic. CAS#: 7440-38-2. Atlanta, GA. August 2007, with Addendum. <http://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=22&tid=3>.
- ATSDR. 2011. Agency for Toxic Substances and Disease Registry. CCA-Treated Wood Public Health Statement. March 2011. <http://www.atsdr.cdc.gov/toxfaqs/fs.asp?id=1202&tid=3>.
- ATSDR. 2012. Agency for Toxic Substances and Disease Registry. Division of Toxicology. Toxicological Profile for Chromium. CAS#: 7440-47-3. Atlanta, GA. September 2012. <http://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=62&tid=17>.
- CALEPA. 2008. Department of Toxic Substances Control. Environmental Chemistry Laboratory. *Hazardous Waste Analysis of Copper, Azole, Alkaline Copper Quarternary, and Creosote Preserved Wood*. ECL Report Number 2088-04. November 2008.
- DLA. 2013. DRMS Instruction 4160.14. Operating Instructions for Disposition Management. DRMS-B/J-34.
- DA. 2013. Regulation 11-34, *The Army Respiratory Protection Program*. July 2013.
- DOD 2015. Defense Materiel Disposition Manual. DOD 4160.2-M. Office of the Deputy Under Secretary of Defense (AT&L). Washington, DC, October 2015.
- DOD 2015. DOD Instruction 4715.06, Environmental Compliance in the United States. Office of the Deputy Under Secretary of Defense (AT&L). Washington, DC, May 2016.

EPRI. 1991. EPRI EN-7062, *Pentachlorophenol (PCP)-Treated Wood Poles and Crossarms: Toxicity Characteristic Leaching Procedure (TCLP) Results*. January 1991.

Title 29 CFR Part 1910 Subpart I, Occupational Safety and Health Administration, Personal Protective Equipment, July 2013.

Title 29 CFR Part 1910.34, Occupational Safety and Health Administration, Coverage and Definitions, July 2013.

Title 29 CFR Part 1910.133, Occupational Safety and Health Administration, Eye and Face Protection, July 2013.

Title 29 CFR Part 1910.1200, Occupational Safety and Health Administration, Hazard Communication, July 2013.

Title 40 CFR Part 261.4, Identification and Listing of Hazardous Waste, Exclusions, July 2011.

U.S. Army Environmental Center. 1999. Report No. SFIM-AEC-ET-CR-99033. *Summary of PCP-Treated Wood Waste Management at Army Installations*. Aberdeen Proving Ground, MD. June 1999.

U.S. Army Environmental Hygiene Agency. 1991. *Technical Guide No. 146: Pentachlorophenol-Treated Materials*. Aberdeen Proving Ground, MD. September 09, 1991.

EPA. 2008a. EPA 739-R-08-008, Prevention, Pesticides and Toxic Substances. Reregistration Eligibility Decision for Pentachlorophenol. Office of Prevention, Pesticides, and Toxic Substances. September 25, 2008.

EPA. 2008b. EPA 739-R-08-007, Prevention, Pesticides and Toxic Substances. Reregistration Eligibility Decision for Creosote. Office of Prevention, Pesticides, and Toxic Substances. September 25, 2008.

EPA. 2008c. EPA 739-R-08-006, Reregistration Eligibility Decision for Chromated Arsenicals. Office of Prevention, Pesticides, and Toxic Substances. September 25, 2008.

EPA. 2008d. Chromated Copper Arsenate (CCA): Consumer Advice Related to CCA-Treated Wood. April 2008.



EPA. 2004a. Office of Solid Waste and Emergency Response. Memorandum. Subject: Wood Mulch Derived from Waste Lumber Preserved with Chromated Copper Arsenate (CCA). January 2004.

EPA. 2004b. Office of Solid Waste and Emergency Response. Recommendation of the Disposal of Waste Lumber Preserved with Chromated Copper Arsenate (CCA). RCRA Online Number: 14707. April 2004.

EPA. 1986. Office of Solid Waste and Emergency Response. Document Record. RCRA Online Number: 11129. Disposal of Wood Treated With Creosote. RPPC Number: 9441.1986 (10). February 11, 1986.

EPA. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods. <http://www.epa.gov/waste/hazard/testmethods/sw846/index.htm>

EPA. 1984. Wood Preservative Pesticides: Creosote, Pentachlorophenol, and the Inorganic Arsenicals. Position Document 4. Office of Prevention, Pesticides, and Toxic Substances.

U.S. National Archives and Records Administration. 1976. Public Law 94-580, Resource Conservation and Recovery Act.

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**APPENDIX B**  
**STATE TREATED WOOD GUIDANCE**

<b>State Guidance for Managing Chemically Treated Wood Material</b>	
Alabama	<p>Solid Waste PCP/Creosote: reuse or use as fuel in properly permitted industrial burners for generation of steam energy to power a manufacturing plant. <a href="http://www.aces.edu/waterquality/faq/faq_results.php3?rowid=2289">http://www.aces.edu/waterquality/faq/faq_results.php3?rowid=2289</a> Alabama Department of Environmental Management ADEM Land Division Post Office Box 301463 Montgomery, Alabama 36130-1463 334-271-7730 <a href="mailto:landmail@adem.state.al.us">landmail@adem.state.al.us</a></p>
Alaska	<p>Solid Waste. Creosote treated wood cannot be open burned. <a href="http://dec.alaska.gov/eh/dos/sw/CD%20Waste%202015.pdf">http://dec.alaska.gov/eh/dos/sw/CD%20Waste%202015.pdf</a> Alaska Department of Environmental Conservation Division of Environmental Health Solid Waste Program 555 Cordova Street Anchorage, AK 99501 907-269-7802 <a href="https://dec.alaska.gov/eh/sw/index.htm">https://dec.alaska.gov/eh/sw/index.htm</a></p>
Arizona	<p>Determine whether potential RCRA characteristic hazardous waste. <a href="http://www.azdeq.gov/enviro/waste/hazwaste/download/managehw.pdf">http://www.azdeq.gov/enviro/waste/hazwaste/download/managehw.pdf</a> Arizona Department of Environmental Quality Waste Programs Division 1110 W. Washington St. Phoenix, AZ 85007 800-234-5677 <a href="http://www.azdeq.gov/index.html">http://www.azdeq.gov/index.html</a></p>
Arkansas	<p>Determine whether potential RCRA characteristic hazardous waste. May be disposed of in a Class 1 Landfill if non-hazardous. <a href="http://www.adeq.state.ar.us/solwaste/branch_technical/cl4waste.htm">http://www.adeq.state.ar.us/solwaste/branch_technical/cl4waste.htm</a> Arkansas Department of Environmental Quality 5301 Northshore Drive North Little Rock, AR 72118 501-682-0744 <a href="http://www.adeq.state.ar.us/default.htm">http://www.adeq.state.ar.us/default.htm</a></p>

<p>California</p>	<p>Determine whether potential RCRA characteristic hazardous waste. Dispose of in a Class 1 hazardous waste landfill or in a composite-lined portion of a SW landfill approved to accept treated wood waste in accordance with California COR 22, Division 4.5 Chapter 34 under the Alternative Management Standards.  <a href="http://www.calrecycle.ca.gov/LEA/mail/2010/WoodWaste/FAQs.pdf">http://www.calrecycle.ca.gov/LEA/mail/2010/WoodWaste/FAQs.pdf</a>                  California Environmental Protection Agency                  Department of Toxic Substances Control                  1001 I Street                  P.O. Box 2815                  Sacramento, CA 95812                  916-323-2514  <a href="http://www.calepa.ca.gov/">http://www.calepa.ca.gov/</a></p>
<p>Colorado</p>	<p>Determine potential RCRA characteristics. May be disposed of in a MSW landfill if non-hazardous.                  Colorado Department of Public Health and Environment                  4300 Cherry Creek Drive South                  Denver, Colorado 80246-1530                  303-692-2000  <a href="http://www.cdphe.state.co.us/">http://www.cdphe.state.co.us/</a></p>
<p>Connecticut</p>	<p>Reuse and recycle where possible. Contractors, utilities, and manufacturers should contract directly with Connecticut Department of Energy and Environmental Protection (DEEP) for disposal in a permitted bulky waste landfill.  <a href="http://www.ct.gov/deep/cwp/view.asp?a=2714&amp;q=324870">http://www.ct.gov/deep/cwp/view.asp?a=2714&amp;q=324870</a>                  Connecticut Department of Environmental Protection                  79 Elm Street                  Hartford, CT 06106                  860-424-3000  <a href="http://www.ct.gov/dep/site/default.asp">http://www.ct.gov/dep/site/default.asp</a></p>
<p>Delaware</p>	<p>Solid Waste. Dispose of in a MSW landfill.  <a href="http://www.dnrec.delaware.gov/whs/awm/shwmb/pages/howdoidisposeoforrecycle.aspx">http://www.dnrec.delaware.gov/whs/awm/shwmb/pages/howdoidisposeoforrecycle.aspx</a>                  Delaware Department of Natural Resources and Environmental Control                  Richard &amp; Robbins Building                  89 Kings Highway                  Dover, DE 19901                  302-739-9000  <a href="http://www.dnrec.delaware.gov/Pages/default.aspx">http://www.dnrec.delaware.gov/Pages/default.aspx</a></p>
<p>District of Columbia</p>	<p>Pressure-treated and creosote-treated wood are considered hazardous and are not recyclable. Contact the District of Columbia Department of Public Works Sanitation Services to determine treated wood disposal and reuse requirements.                  2000 14th Street, NW, Washington, DC 20009                  Phone: (202) 673-6833 Email: dpw@dc.gov                  District of Columbia Department of Health                  Environmental Health Division</p>

	<p>51 N Street, NE                  Washington, DC 20002                  202-535-2500  <a href="http://doh.dc.gov/doh/cwp/view.asp?A=3&amp;Q=573184">http://doh.dc.gov/doh/cwp/view.asp?A=3&amp;Q=573184</a></p>
Florida	<p>Dispose of in a lined landfill.  <a href="http://www.dep.state.fl.us/waste/quick_topics/publications/shw/recycling/swm_99/chapters/landfill.pdf">http://www.dep.state.fl.us/waste/quick_topics/publications/shw/recycling/swm_99/chapters/landfill.pdf</a>                  Florida Department of Environmental Protection                  3900 Commonwealth Blvd. M.S. 49                  Tallahassee, FL 32399                  850-245-2118  <a href="http://www.dep.state.fl.us/">http://www.dep.state.fl.us/</a></p>
Georgia	<p>Solid Waste. Burn only in commercial or industrial incinerators or boilers in accordance with State and Federal regulations.                  Georgia Department of Natural Resources                  Environmental Protection Division                  2 Martin Luther King Jr. Drive                  Suite 1152, East Tower                  Atlanta, GA 30334                  888-373-5947  <a href="http://epd.georgia.gov/">http://epd.georgia.gov/</a></p>
Hawaii	<p>Construction and Demolition Waste. Reuse according to intended purpose or Dispose of in Hawaii Department of Health permitted landfill.                  Incineration/burning is prohibited.  <a href="http://health.hawaii.gov/shwb/files/2013/06/trtdwood1.pdf">http://health.hawaii.gov/shwb/files/2013/06/trtdwood1.pdf</a>                  Hawaii State Department of Health                  Solid and Hazardous Waste Branch                  919 Ala Moana Blvd, Room 212                  Honolulu, HI 96814                  808-586-4226  <a href="http://hawaii.gov/health/environmental/">http://hawaii.gov/health/environmental/</a></p>
Idaho	<p>Contact the Idaho Department of Environmental Quality Solid Waste Program to determine landfill type for disposal.                  Idaho Department of Environmental Quality                  DEQ State Office                  Waste Management and Remediation Division                  1410 North Hilton                  Boise, ID 83706                  208-373-0502  <a href="http://www.deq.idaho.gov/">http://www.deq.idaho.gov/</a></p>

<p>Illinois</p>	<p>Treated wood that is <u>not weathered</u> or that <u>does contain surface deposits or surface staining</u> must be tested to determine if it is hazardous. Treated wood that <u>is weathered</u> and contains <u>no surface deposits or surface staining</u> destined for treatment, storage, disposal, or use as a fuel is a non-special solid waste. The generator is not required to determine if this wood is hazardous. Treated wood must be non-hazardous for use as a fuel in a permitted boiler or industrial furnace.</p> <p><a href="http://www.epa.state.il.us/land/waste-mgmt/factsheets/treated-wood.html">http://www.epa.state.il.us/land/waste-mgmt/factsheets/treated-wood.html</a>          Illinois Environmental Protection Agency          1021 North Grand Avenue East          Post Office Box 19276          Springfield, IL 62794          217-782-3397  <a href="http://www.epa.state.il.us/">http://www.epa.state.il.us/</a></p>
<p>Indiana</p>	<p>Determine whether potential RCRA characteristic hazardous waste. May be disposed of in a MSW landfill if non-hazardous.</p> <p><a href="http://www.in.gov/idem/files/nrpd_waste-0031.pdf">http://www.in.gov/idem/files/nrpd_waste-0031.pdf</a>          Indiana Department of Environmental Management          Indiana Government Center North          100 N. Senate Ave.          Indianapolis, IN 46204          317-232-8603  <a href="http://www.in.gov/idem/index.htm">http://www.in.gov/idem/index.htm</a></p>
<p>Iowa</p>	<p>Solid Waste. Reuse or recycle according to intended use. PCP and creosote treated wood may be burned only in commercial or industrial incinerators or boilers in accordance with State and Federal regulations. CCA-treated wood should not be burned, even in state-of-the-art incinerators.</p> <p><a href="http://www.extension.iastate.edu/forestry/publications/pdf_files/pm1033.pdf">http://www.extension.iastate.edu/forestry/publications/pdf_files/pm1033.pdf</a>          Iowa Department of Natural Resources          502 E. 9th Street, 4th Floor          Des Moines, IA 50319          515-725-8200  <a href="http://www.iowadnr.gov/index.html">http://www.iowadnr.gov/index.html</a></p>
<p>Kansas</p>	<p>Dispose of in a C&amp;D landfill.</p> <p><a href="http://www.kdheks.gov/waste/techguide/SW-1994-G2.pdf">http://www.kdheks.gov/waste/techguide/SW-1994-G2.pdf</a>          Kansas Department of Health and Environment          Curtis State Office Building          1000 SW Jackson Street, Suite 320          Topeka, KS 66612          785-296-1500  <a href="http://www.kdheks.gov/">http://www.kdheks.gov/</a></p>

Kentucky	<p>Solid Waste. Contact the Kentucky Department for Environmental Protection to determine landfill type for disposal.</p> <p><a href="http://air.ky.gov/SiteCollectionDocuments/OpenBurning_Brochure_2012.pdf">http://air.ky.gov/SiteCollectionDocuments/OpenBurning_Brochure_2012.pdf</a></p> <p>Kentucky Department for Environmental Protection 200 Fair Oaks Lane Frankfort, KY 40601 502-564-2150 <a href="http://www.dep.ky.gov/">http://www.dep.ky.gov/</a></p>
Louisiana	<p>Solid Waste. Contact the Louisiana Department of Environmental Quality to determine landfill type for disposal.</p> <p>Louisiana Department of Environmental Quality 602 N 5th Street Baton Rouge, LA 70802 1-866-896-LDEQ <a href="http://www.deq.state.la.us">www.deq.state.la.us</a></p>
Maine	<p>Arsenical Treated wood must be separated from the other waste at a lined solid waste landfill. There is a limit to the amount that is able to be disposed of in an unlined landfill.</p> <p><a href="http://www.mainelegislature.org/ros/LOM/LOM121st/10Pub451-500/Pub451-500-96.htm">http://www.mainelegislature.org/ros/LOM/LOM121st/10Pub451-500/Pub451-500-96.htm</a></p> <p>Maine Department of Environmental Protection 17 State House Station 28 Tyson Drive Augusta, ME 04333-0017 207-287-7688 <a href="http://www.maine.gov/dep/index.shtml">http://www.maine.gov/dep/index.shtml</a></p>
Maryland	<p>Determine whether potential RCRA characteristic hazardous waste. May dispose of in a MSW or Rubble Landfill if non-hazardous.</p> <p>Maryland Department of the Environment 1800 Washington Blvd Baltimore, MD 21230 410-537-3000 <a href="http://www.mde.state.md.us/Programs/index.asp">http://www.mde.state.md.us/Programs/index.asp</a></p>
Massachusetts	<p>Manage in accordance with Massachusetts Special Waste requirements.</p> <p>Massachusetts Department of Environmental Protection 1 Winter Street Boston, MA 02108 617-292-5500 <a href="http://www.mass.gov/eea/contact-eea.html">http://www.mass.gov/eea/contact-eea.html</a></p>

<p>Michigan</p>	<p>Dispose of in landfills licensed to hold treated wood.  <a href="http://www.michigan.gov/documents/deq/deq-ess-p2tas-faq-cdwaste_197547_7.pdf">http://www.michigan.gov/documents/deq/deq-ess-p2tas-faq-cdwaste_197547_7.pdf</a>                  Michigan Department of Environmental Quality                  Constitution Hall                  525 West Allegan Street                  Lansing, MI 48909-7973                  517-284-6651  <a href="http://www.michigan.gov/deq">http://www.michigan.gov/deq</a></p>
<p>Minnesota</p>	<p>Dispose of in C&amp;D debris or MSW lined landfill; only creosote treated wood can be burned in industrial incinerator approved by Minnesota Pollution Control Agency.                  Minnesota Pollution Control Agency                  520 Lafayette Road                  St. Paul, MN 55155-4194                  800-657-3864  <a href="http://www.pca.state.mn.us/">http://www.pca.state.mn.us/</a></p>
<p>Mississippi</p>	<p>Reuse according to originally intended use. Small amounts dispose of in a MSW landfill or Class I rubbish sites. Larger volumes should be disposed of in a municipal landfill or larger lined disposal facility.  <a href="http://www.deq.state.ms.us/Mdeq.nsf/pdf/SW_ArchitecturalDebrisDisposalGuidance(June2007)/\$File/Arch.%20Debris%20Guidance%20-%20June%202007%20(web).pdf?OpenElement">http://www.deq.state.ms.us/Mdeq.nsf/pdf/SW_ArchitecturalDebrisDisposalGuidance(June2007)/\$File/Arch.%20Debris%20Guidance%20-%20June%202007%20(web).pdf?OpenElement</a>                  Mississippi Department of Environmental Quality                  Office of Pollution Control                  P. O. Box 2261                  Jackson, MS 39225                  601-961-5171  <a href="http://www.deq.state.ms.us/">http://www.deq.state.ms.us/</a></p>
<p>Missouri</p>	<p>Dispose of in landfills permitted for sanitary or demolition waste or burned in incinerators or energy recovery units that have permits to burn treated wood.  <a href="http://dnr.mo.gov/pubs/pub196.htm">http://dnr.mo.gov/pubs/pub196.htm</a>                  Missouri Department of Natural Resources                  Solid Waste Management Program                  P.O. Box 176,                  1101 Riverside Drive                  Jefferson City, MO 65102-0176                  1-800-361-4827 or 573-751-3443 office  <a href="http://www.dnr.mo.gov/index.html">http://www.dnr.mo.gov/index.html</a></p>



<p>Montana</p>	<p>Solid waste when used for its intended purpose. Contact local landfill for disposal options. Burning treated wood prohibited.                  Montana Department of Environmental Quality                  1520 E. Sixth Avenue                  Helena, MT 59620-0901                  406-444-2544  <a href="http://deq.mt.gov/">http://deq.mt.gov/</a></p>
<p>Nebraska</p>	<p>Solid Waste. Disposed of in a permitted municipal solid waste or C&amp;D landfill without prior approval from the department. Any type of treated wood that has been painted or contaminated with anything that may be hazardous, is subject to a hazardous waste determination. If determined to be hazardous, it must be disposed of according to the Nebraska Hazardous Waste Laws.                  Nebraska Department of Environmental Quality                  1200 N Street, Suite 400                  P.O. Box 98922                  Lincoln, NE 68509                  402-471-2186  <a href="http://www.deq.state.ne.us/">http://www.deq.state.ne.us/</a></p>
<p>Nevada</p>	<p>Contact the Nevada Department of Conservation and Natural Resources Division of Environmental Protection to determine landfill type for disposal.                  Nevada Department of Conservation and Natural Resources                  Division of Environmental Protection                  901 South Stewart Street, Suite 4001                  Carson City, Nevada 89701-5249                  775-687-4670  <a href="http://ndep.nv.gov/index.htm">http://ndep.nv.gov/index.htm</a></p>
<p>New Hampshire</p>	<p>Disposed in a permitted landfill or a C&amp;D debris processing facility  <a href="http://des.nh.gov/organization/commissioner/pip/factsheets/co/documents/co-20.pdf">http://des.nh.gov/organization/commissioner/pip/factsheets/co/documents/co-20.pdf</a>                  New Hampshire Department of Environmental Services                  29 Hazen Drive                  PO Box 95                  Concord, NH 03302-0095                  603-271-3503  <a href="http://des.nh.gov/index.htm">http://des.nh.gov/index.htm</a></p>

<p>New Jersey</p>	<p>Determine whether potential RCRA characteristic hazardous waste. May dispose of in a MSW if non-hazardous.  <a href="http://www.state.nj.us/dep/dshw/recycling/admentme/Union/042706.pdf">http://www.state.nj.us/dep/dshw/recycling/admentme/Union/042706.pdf</a>                  New Jersey Department of Environmental Protection                  P.O. Box 420                  Trenton, NJ 08625                  1-866-DEP-KNOW  <a href="http://www.state.nj.us/dep/">http://www.state.nj.us/dep/</a></p>
<p>New Mexico</p>	<p>Contact the New Mexico Environment Department to determine landfill type for disposal.                  New Mexico Environment Department                  Harold L. Runnels Building                  1190 St. Francis Drive, Suite N4050                  Santa Fe, New Mexico 87502-5469                  505-827-2855  <a href="http://www.nmenv.state.nm.us/index.html">http://www.nmenv.state.nm.us/index.html</a></p>
<p>New York</p>	<p>Dispose of in C&amp;D landfill or MSW landfill authorized to accept C&amp;D waste.  <a href="http://www.dec.ny.gov/chemical/8790.html">http://www.dec.ny.gov/chemical/8790.html</a>                  New York State Department of Environmental Conservation                  625 Broadway                  Albany, NY 12233-0001                  578-402-8044  <a href="http://www.dec.ny.gov/index.html">http://www.dec.ny.gov/index.html</a></p>
<p>North Carolina</p>	<p>Contact the North Carolina Department of Environment and Natural Resources to determine landfill type for disposal.                  North Carolina Department of Environmental Quality                  1601 Mail Service Center                  Raleigh, NC 27699-1601                  919-733-4984  <a href="http://www.nc.gov/agencies/environment-natural-resources">http://www.nc.gov/agencies/environment-natural-resources</a></p>
<p>North Dakota</p>	<p>Solid Waste landfill. Contact the North Dakota Department of Health Division of Waste Management to determine landfill type for disposal.  <a href="http://www.ndhealth.gov/wm/Publications/WoodWasteInformation.pdf">http://www.ndhealth.gov/wm/Publications/WoodWasteInformation.pdf</a>                  North Dakota Department of Health                  Division of Waste Management                  918 East Divide Avenue, 3rd Floor                  Bismarck, ND 58501-1947                  701-328-5166  <a href="https://www.ndhealth.gov/WM/">https://www.ndhealth.gov/WM/</a></p>
<p>Ohio</p>	<p>Disposed of in a C&amp;D landfill.  <a href="http://epa.ohio.gov/Portals/51/Recycle/OhioWoodWasteMarketandResourceStudy.pdf">http://epa.ohio.gov/Portals/51/Recycle/OhioWoodWasteMarketandResourceStudy.pdf</a>                  Ohio Environmental Protection Agency                  P.O. Box 1049</p>

	<p>Columbus, Ohio 43216-1049          614-644-3020  <a href="http://www.epa.state.oh.us/">http://www.epa.state.oh.us/</a></p>
Oklahoma	<p>Solid waste that must be disposed of in an Oklahoma DEQ permitted landfill.  <a href="http://www.deq.state.ok.us/factsheets/air/OpenBurningandYou.pdf">http://www.deq.state.ok.us/factsheets/air/OpenBurningandYou.pdf</a>          Oklahoma Department of Environmental Quality          Land Protection Division          P.O. Box 1617          Oklahoma City, OK 73101-1677          405-702-5100  <a href="http://www.deq.state.ok.us/lpdnew/index.htm">http://www.deq.state.ok.us/lpdnew/index.htm</a></p>
Oregon	<p>Solid Waste. Treated wood from commercial or industrial use may be burned only in commercial or industrial incinerators or boilers in accordance with State and Federal regulations.          Oregon Department of Environmental Quality          Land Quality Division          811 SW 6th Ave.          Portland, OR 97204-1390          800-452-4011  <a href="http://www.oregon.gov/DEQ/">http://www.oregon.gov/DEQ/</a></p>
Pennsylvania	<p>Dispose of in a MSW landfill or C&amp;D landfill.  <a href="http://jcc.legis.state.pa.us/resources/ftp/documents/reports/Arsenic%20Green%20Paper%20-%202002.pdf">http://jcc.legis.state.pa.us/resources/ftp/documents/reports/Arsenic%20Green%20Paper%20-%202002.pdf</a>          Pennsylvania Department of Environmental Protection          Bureau of Waste Management          Rachel Carson State Office Building          400 Market Street          Harrisburg, PA 17101          717-787-2300  <a href="http://www.depweb.state.pa.us/dep/site/default.asp">http://www.depweb.state.pa.us/dep/site/default.asp</a></p>
Puerto Rico	<p>Contact the Puerto Rico Environmental Quality Board to determine landfill type for disposal.          Puerto Rico Environmental Quality Board          Office of the Governor          P.O. Box 11488          San Juan, Puerto Rico 00910          787-767-8181</p>
Rhode Island	<p>Solid waste landfill. Contact the Rhode Island Department of Environmental Management to determine landfill type for disposal.  <a href="http://www.dem.ri.gov/programs/ombuds/outreach/integsw/pdf/demissue.pdf">http://www.dem.ri.gov/programs/ombuds/outreach/integsw/pdf/demissue.pdf</a>          State of Rhode Island          Department of Environmental Management          235 Promenade Street</p>

	Providence, RI 02908 401-222-6800 <a href="http://www.dem.ri.gov/index.htm">http://www.dem.ri.gov/index.htm</a>
South Carolina	Solid Waste landfill. Contact the South Carolina Department of Health and Environmental Control to determine landfill type for disposal. <a href="http://www.scdhec.gov/HomeAndEnvironment/Docs/AppendixI.pdf">http://www.scdhec.gov/HomeAndEnvironment/Docs/AppendixI.pdf</a> SC Department of Health and Environmental Control 2600 Bull Street Columbia, SC 29201 803-898-3432 <a href="http://www.scdhec.gov/">http://www.scdhec.gov/</a>
South Dakota	Disposed of at a permitted solid waste landfill. <a href="http://denr.sd.gov/des/aq/openburn.aspx">http://denr.sd.gov/des/aq/openburn.aspx</a> South Dakota Department of Environment and Natural Resources SD DENR Joe Foss Building 523 East Capitol Pierre, SD 57501 605-773-3151 <a href="http://denr.sd.gov/">http://denr.sd.gov/</a>
Tennessee	Solid Waste landfill. Contact the Tennessee Department of Environment and Conservation to determine landfill type for disposal. <a href="https://utextension.tennessee.edu/publications/Documents/W249.pdf">https://utextension.tennessee.edu/publications/Documents/W249.pdf</a> Tennessee Department of Environment and Conservation 312 Rosa L. Parks Ave Nashville, TN 37243 888-891-8332 <a href="http://www.tn.gov/environment/">http://www.tn.gov/environment/</a>
Texas	Class I landfill <a href="http://www.tceq.texas.gov/assets/public/response/drought/managing-wildfire-debris.pdf">http://www.tceq.texas.gov/assets/public/response/drought/managing-wildfire-debris.pdf</a> Texas Commission of Environmental Quality Office of Waste Management P.O. Box 13087 Austin, TX 78711 512-239-1000 <a href="http://www.tceq.state.tx.us/">http://www.tceq.state.tx.us/</a>
Utah	Manage as a Special Waste in accordance with Utah special waste requirements. <a href="http://www.rules.utah.gov/publicat/code/r315/r315-301.htm">http://www.rules.utah.gov/publicat/code/r315/r315-301.htm</a> Utah Department of Environmental Quality Division of Solid and Hazardous Waste P.O. Box 144880

	<p>Salt Lake City, UT 84114              801-536-0211  <a href="http://www.deq.utah.gov/">http://www.deq.utah.gov/</a></p>
Vermont	<p>Determine whether potential RCRA characteristic hazardous waste. If it is a HW, must be disposed of in accordance with Vermont hazardous waste regulations. If non-hazardous, wood can be disposed of in a certified lined landfill.  <a href="http://www.anr.state.vt.us/air/docs/woodwaste_fs.pdf">http://www.anr.state.vt.us/air/docs/woodwaste_fs.pdf</a>              Vermont Department of Environmental Conservation              Commissioners Office              Commissioners Office              One National Life Drive              Montpelier, VT 05620              802-828-1556  <a href="http://dec.vermont.gov/">http://dec.vermont.gov/</a></p>
Virginia	<p>Contact the Virginia Department of Environmental Quality to determine landfill type for disposal.  <a href="http://www.deq.virginia.gov/Portals/0/DEQ/Land/Guidance/cgswtfhwdp.pdf">http://www.deq.virginia.gov/Portals/0/DEQ/Land/Guidance/cgswtfhwdp.pdf</a>              Virginia Department of Environmental Quality              629 East Main Street              P.O. Box 1105              Richmond, VA 23218              804-698-4000  <a href="http://www.deq.virginia.gov/">http://www.deq.virginia.gov/</a></p>

<p>Washington</p>	<p>Arsenical treated wood excluded if used for its intended purpose (WAC 173-303-071 (3) (g) (i)).                  PCP and creosote treated wood is regulated as Dangerous Waste unless managed under Treated Wood Exclusion (WAC 173-351) or Excluded categories of waste (WAC 173-303-071 (3) (g)).                  Allows disposal treated wood in a municipal solid waste landfill permitted under chapter 173-351 WAC, provided it is not a listed or TCLP waste. This landfill option cannot be used for wood waste that designates because it is listed or fails the TCLP test, but it may be sent to a non-permitted facility that will treat or recycle it. Treated wood waste may also be sent to a permitted TSD facility. With any of these disposal options, the treated wood waste does not have to be managed or reported as a dangerous waste, but it must be removed from the generator's site within 180 days.                  Creosote treated wood may be burned for energy recovery in a regulated commercial or industrial furnace or boiler. Any residue or ash resulting from treating or burning creosote treated wood must be designated and managed appropriately.                  Washington Department of Ecology                  P.O. Box 47600                  Olympia, WA 98504-7600                  360-407-6000  <a href="http://www.ecy.wa.gov">www.ecy.wa.gov</a></p>
<p>West Virginia</p>	<p>Manage as a C&amp;D waste that is disposed of in an approved C&amp;D landfill.  <a href="http://www.dep.wv.gov/Pages/Search.aspx?q=treated%20wood">http://www.dep.wv.gov/Pages/Search.aspx?q=treated%20wood</a>                  West Virginia Department of Environmental Protection                  601 - 57th Street SE                  Charleston, WV 25304                  304-926-0440  <a href="http://www.dep.wv.gov/Pages/default.aspx">http://www.dep.wv.gov/Pages/default.aspx</a></p>
<p>Wisconsin</p>	<p>Reuse and recycle according to intended use or dispose of in a C&amp; D waste landfill.  <a href="http://dnr.wi.gov/topic/Demo/Debris.html">http://dnr.wi.gov/topic/Demo/Debris.html</a>                  Wisconsin Department of Natural Resources                  101 S. Webster Street                  PO Box 7921                  Madison, Wisconsin 53707                  1-888-936-7463  <a href="http://www.dnr.state.wi.us/">http://www.dnr.state.wi.us/</a></p>

<p>Wyoming</p>	<p>Determine whether potential RCRA characteristic hazardous waste. Contact the Wyoming Department of Environmental Quality to determine landfill type for disposal.                  Wyoming Department of Environmental Quality                  200 West 17<sup>th</sup> Street                  Cheyenne, WY 82002                  307-777-7781  <a href="http://deq.state.wy.us/">http://deq.state.wy.us/</a></p>
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Note: These listings are solely provided to depict the variation in State disposal requirements and are not intended for use in determining final State and local requirements for treated wood disposal as such requirements are often subject to change. Generators should contact their installation environmental coordinator, local DLA servicing authority, or State and local regulatory authorities to determine proper treated wood management and disposal practices.

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## **GLOSSARY**

### **ACRONYMS AND ABBREVIATIONS**

**ACA**

ammoniacal copper arsenate

**ACZA**

ammoniacal copper zinc arsenate

**AEHA**

U.S. Army Environmental Hygiene Agency

**AR**

Army Regulation

**ATSDR**

Agency for Toxic Substances and Disease Registry

**CALEPA**

California Environmental Protection Agency

**CCA**

chromated copper arsenate

**CFR**

Code of Federal Regulations

**C&D**

construction and demolition

**DA**

Department of the Army

**DLA**

Defense Logistics Agency

**DOD**

Department of Defense

**DRMS**

Defense Reutilization and Marketing Service

**EPRI**

Electronic Power Research Institute

**FIFRA**

Fungicide and Rodenticide Act

**HCB**

Hexachlorobenzene

**HCS**

Hazardous Communication Standard

**HW**

hazardous waste

**ISWMP**

Installation Solid Waste Management Program

**mg/L**

milligrams per liter

**mg/m<sup>3</sup>**

milligrams per cubic meters

**µg/m<sup>3</sup>**

micrograms per cubic meter

**MSDS**

material safety data sheets

**MSW**

municipal solid waste

**NIOSH**

National Institute for Occupational Safety and Health

**OCONUS**

outside the contiguous United States

**OSHA**

Occupational Safety and Health Administration

**PAH**

polyaromatic hydrocarbons

**PCP**

Pentachlorophenol

**PEL**

permissible exposure level

**PPE**

personal protective equipment

**RCRA**

Resource Conservation and Recovery Act

**RED**

Reregistration Eligibility Decisions

**RTD**

reutilization, transfer, and disposal

**RUP**

restricted use products

**TCLP**

Toxicity Characteristic Leaching Procedure

**TG**

technical guide

**EPA**

U.S. Environmental Protection Agency

**ug/m<sup>3</sup>**

Micrograms per cubic meter

**LOCAL REPRODUCTION IS  
AUTHORIZED AND ENCOURAGED**

