

Production Guide

Best Management Practices

For the use of preserved wood in aquatic and sensitive environments



Developed for the U.S. and Canada by:

Western Wood Preservers Institute • Southern Pressure Treaters' Association
Southern Forest Products Association • Wood Preservation Canada • Creosote Council

Companion to Specifiers Guide - Best Management Practices

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ABOUT THE GUIDE

This guide and the companion *Specifiers Guide - Best Management Practices For the Use of Preserved Wood In Aquatic and Sensitive Environments* were developed for the U.S. and Canada through an industry consensus process by Western Wood Preservers Institute (WWPI), Southern Pressure Treaters' Association (SPTA), Southern Forest Products Association (SFPA), Wood Preservation Canada (WPC) and the Creosote Council.

The BMP Mark and responsibility for registering qualified wood treaters are held by Western Wood Preservers Institute, 12503 SE Mill Plain Blvd., Suite 205, Vancouver, WA 98684, phone 360-693-9958, email info@wwpi.org.

DISCLAIMER

Western Wood Preservers Institute, Southern Pressure Treaters' Association, Southern Forest Products Association, Wood Preservation Canada and the Creosote Council believe the information contained in this publication to be based on up-to-date scientific and economic information and is intended for general informational purposes. In furnishing this information, the associations make no warranty or representation, either expressed or implied, as to the reliability or accuracy of such information; nor do the associations assume any liability resulting from use of or reliance upon the information by any party. This publication should not be construed as a specific endorsement or warranty, direct or implied, of preserved wood products or preservatives in terms of performance, environmental impact or safety. The information contained herein should not be construed as a recommendation to violate any federal, provincial, state or municipal law, rule or regulation, and any party using or producing pressure treated wood products should review all such laws, rules or regulations prior to using or producing preservative treated wood products.

Chapter 1: Production of BMP Qualified Wood Products

Introduction

Best Management Practices (BMPs) are recommended guidelines for the production and installation of preserved wood products destined for use in aquatic and wetland environments. The guidelines were developed through a treating industry consensus process, based on research and a core philosophy of chemical minimization.

An overview of the BMP Program and its application in specifying preserved wood for use in aquatic and wetland environments is available in the most current version of the *Specifiers Guide – Best Management Practices For the Use of Preserved Wood In Aquatic and Sensitive Environments* available at www.PreservedWood.org.

Production Requirements

Manufacturing of BMP wood products must conform to specific practices as outlined for each listed preservative. The overall objective of all of these production practices is to provide the needed level of protection while also minimizing use of the preservative above the required standard minimum in order to reduce the amount potentially available for movement into the environment.

The following BMP procedures are applicable to the production of preserved wood products using all listed preservative systems. Treaters may obtain additional information in American Wood Protection Association's (AWPA) *Standard M20 - Guidelines for Minimizing Oil-Type Wood Preservative Migration* and *Standard M26 - Guidelines for Fixation/Stabilization of Waterborne Preservatives in Poles* or may develop specific technologies based upon their unique plant facilities that meet or exceed the BMP criteria.

The required practices are unique for each preservative to achieve the BMP objectives. Specific practices for each preservative are listed for the following categories:

- Conditioning
- Preservative
- Treatment Processes
- Post-Treatment Procedures
- Technical notes

General requirements also are shown for plant and product cleaning, processing and record keeping.

Treating Company Requirements

Companies that would like to manufacture BMP-marked wood products must enter into a contract with Western Wood Preservers Institute (WWPI). The contract outlines the treater's responsibilities in producing BMP products, including adherence to the requirements outlined in this guide, confirmation of an agreement with an authorized third-party inspection agency, rights for use of the BMP Mark and payment of annual fees to maintain BMP authorization.

Any treating company operating in the U.S. or Canada that can meet the requirements outlined in this publication can register for the BMP Program. For more information, contact Western Wood Preservers Institute, 12503 SE Mill Plain Blvd., Suite 205, Vancouver, WA 98682, phone 360-693-9958, email info@wwpi.org.

Registration for the BMP Mark is not required to produce preserved wood products to the BMPs. However, third-party inspection is required to confirm compliance to the BMPs. See *Chapter 4: Quality Assurance Inspection Procedures* for more information.

Chapter 2: General BMPs for the Production of Preserved Wood

Preservatives

The preservative chemicals used to treat wood in accordance with these BMPs shall be those listed in **AWPA Use Category System (UCS) Standard U1, Section 4: Standardized Preservatives** and shall comply with the requirements referenced therein or as appropriately specified by the Canadian Standards Association (CSA O80).

Preservative Treating Solution

Specific solution requirements for each preservative listed in **AWPA Standard U1, Section 4** can be found in the specific 'P' Standard referenced. Compliance with the AWPA treating solution requirements is a BMP treating criteria.

Plant and Product Cleaning Standards

- Follow good housekeeping practices in the plant to minimize sawdust, wood shavings, dirt and debris or residue collecting on the wood surface prior to treatment.
- The treatment cylinder (retort) should be kept clean and free of debris.
- Clean treating solutions are necessary and shall be used to produce clean products. Several process techniques have been utilized to maintain treating solutions in an acceptable condition (see **Chapter 3: BMPs for Preservatives**).

These include, but are not limited to: filtering, turnover of tank inventory, controlling tank temperatures, using cone or dome shaped tank bottoms, minimizing storage and treating tank levels, using high quality solvents and preservatives, and periodic draining and cleaning of work tanks when residues are present.

Processing

- Wood products should be sorted and treated by charges containing wood of similar sizes, classes, species, species groupings, moisture content, conditioning methods, treating characteristics and retention levels.
- Use appropriate seasoning and conditioning methods for the specified preservative treatment (i.e. air seasoning, kiln drying, steam conditioning, heating in oil, Boultonizing).
- Follow **AWPA Standard T1** procedures and process limitations as appropriate for preservative and materials being treated.
- Treating should be conducted in such a manner as to seek to minimize the amount of preservative placed into the wood while assuring conformance with AWPA retention and penetration requirements.
- Treat using a standard pressure process such as Bethel full cell, modified full cell, Lowry (modified empty cell) or Rueping empty cell as appropriate for preservative type and final application of the preserved wood product.

- Final vacuum time is recorded only after attaining a minimum 22 inches Hg (75 kPa) sea level equivalent and maintaining that minimum for the duration of the vacuum cycle.
- Apply appropriate post-treatment conditioning techniques to minimize preservative loss after treatment. These processes are generally preservative specific, with specific systems based upon plant equipment characteristics and capabilities at the treating facility.

The following techniques or methods are shown as examples and are usually more applicable when treating with oil-type preservatives:

- Transition between various phases of the treating process (e.g. pressure to final vacuum or final vacuum to atmospheric pressure) should be at a rate which allows the wood and preservative to reasonably adjust to such changes. Slow transitions generally result in a product with less excess preservative on the surface. The rate of transition varies with the size of the material being treated.
- At the conclusion of the pressure period, and prior to removing preservative from the cylinder, the sealed cylinder should remain sealed while the pressure in the cylinder equalizes with the preserved wood. When the pressure has stabilized, a very slow release of pressure should be facilitated.
- Document the BMP treating processes used with a permanent treating record document and maintain all records and procedures in accordance with ***Chapter 4: Quality Assurance Inspection Procedures.***

Quality Assurance and Inspection

The full requirements for in-plant quality control and inspection, recordkeeping, marking and reinspection are detailed in ***Chapter 4: Quality Assurance Inspection Procedures.*** The BMP inspection procedures address the following items:

- **Inspection** – To the degree practical, material should be inspected to assure it is reasonably clean and free of dirt and sawdust prior to treatment.
- **Monitoring of Treating Solutions** – The plant operator shall inspect treating solutions and plant process filters to minimize any debris in the treating solution and meet the requirements for the specific preservative.
- **Post-Treatment Visual Inspection** – A visual inspection shall be performed to verify the preserved wood product meets the criteria specified for BMP processed material and that no excessive residues or surface deposits are present. If the criteria are not met, the product shall be rejected or reprocessed using appropriate post-treatment conditioning techniques to meet the BMP surface appearance criteria.

- **Reinspection Option** – Since the occurrence of natural variability of wood sampled in a charge or production lot is recognized, reinspection is permitted when there is a dispute over BMP treatment conformance. This should be conducted prior to a decision for re-treatment.
- **Pre-shipment Inspection** – A final visual inspection shall be conducted prior to the material leaving the treating facility to ensure the surface and preserved wood product have no excessive residue or preservative deposits present, have not developed any excessive bleeding and to verify the presence of the BMP Mark on the material or treating certification. Any problems detected shall be corrected prior to shipment.
- **Records, BMP Certification** – Plant records shall have the information used to validate the selected process meeting the particular BMP used, with the times, temperatures and other factors used to meet the BMP requirements listed. The treater assumes this responsibility when placing the BMP Mark or stamp on the material or with a third-party certification that the material shipped from the plant meets BMP requirements.

Chapter 3: BMPs for Preservatives

Waterborne Preservatives - Non-Arsenicals

ACQ – Alkaline Copper Quaternary

CA-B & CA-C – Copper Azole

CuN-W – Copper Naphthenate

MCA & MCA-C – Micronized Copper Azole

EL2 – DCOI / Imidacloprid / Stabilizer

PTI – Propiconazole Tebuconazole Imidacloprid

Waterborne preservatives are those where water is the main carrier to infuse preservatives into the wood fiber. Many of these preservatives use copper, which is one of the oldest and most effective fungicides and insecticides. Copper-based preservatives are formulated in the two waterborne preservative categories, Non-Arsenicals and Arsenicals.

Non-Arsenical preservatives utilize copper, fungicides and biocides to protect the wood against decay fungi and insects. There are three waterborne systems for Non-Arsenical preservatives:

- **Alkaline Systems** – Includes Alkaline Copper Quaternary (ACQ), Copper Azole (CA-B and CA-C) and Copper Naphthenate (CuN-W), where the copper is suspended in alkaline solutions. After treatment, the alkaline precipitates and immobilizes the copper.
- **Micronized Systems** – Includes Micronized Copper Azole (MCA), where finely ground copper carbonate is suspended in the treating solution. This system has limited water solubility and the copper is immobilized once the water evaporates from the wood.
- **Organic (Carbon-Based) Systems** – Includes EL2 and PTI. These systems rely on mixtures of organic fungicides, triazoles and isothiazolones along with an insecticide. They are not employed in direct soil or water contact, but can be used in above ground applications. They do not react with the wood, have low water solubility and are held in solution using co-solvents.

The treating process for each of these Non-Arsenical preservatives are similar and the following BMPs apply to each listed above.

Conditioning

Wood products should be conditioned prior to treatment as defined in **Chapter 2: General BMPs for the Production of Preserved Wood**.

Treatment Processes

The following may be used at the discretion of the treater for all waterborne preservative systems listed above:

- Air drying or kiln drying wood prior to treatment may improve the surface appearance and dryness of the wood after treatment.
- The empty-cell process should be used for full-length pressure treatment with waterborne preservatives as it will provide the desired retention. Full cell processes may be necessary when higher preservative loadings are required.
- The pressure applied during treatment is often slow to dissipate inside the wood. Failure to release this pressure can lead to bleeding of preservative in service. Applying vacuums after treatment can help relieve this internal pressure.

Post-Treatment Procedures

Alkaline Systems (ACQ, CA-C, CA-B, CuN-W): These systems use ethanolamine to keep copper in solution. Loss of ethanolamine results in copper deposition. There are currently no specific BMPs for these materials. However, research has shown that the following processes reduce copper losses. These may be used in combination or alone at the discretion of the treater:

- **Minimum plant hold times:** Allows moisture to evaporate and help immobilize copper. Sticker for 3 weeks at 65°F (18°C) or when the total degree days equals 1,365 (average of the high and low daily temperature multiplied by the number days held – 21 days x 65°F = 1,365 degree days).
- **Kiln drying:** Reduces the moisture content to 30% one-half-inch (12 mm) from the surface. Kiln cycles typically use a dry bulb temperature between 120°F to 160°F (50°C to 70°C) and not to exceed 160°F (70°C).
- **Steaming:** Steaming for 1 to 3 hours at 200°F to 210°F (93°C to 99°C) followed by a minimum 1 hour vacuum at not less than 22 inches Hg (75 kPa).
- **Hot water bath:** Immersion for 1 to 3 hours at 200°F (93°C).

Micronized Systems (MCA, MCA-C): The copper in these systems is suspended as fine particles in water. As a result, air-seasoning, kiln drying or other moisture removal processes will markedly reduce the risk of copper migration.

Organic (Carbon-Based) Systems (EL2, PTI): Evaporation of the co-solvents leads to deposition in the wood. Where immobilization is desired, processes that result in drying will lead to immobilization including air-seasoning, kiln drying and application of long vacuum periods.

Technical Notes

ACQ, CA-B, CA-C, CuN-W, PTI and EL2 are approved by AWWA to treat Douglas-fir, Hem-fir and Southern Yellow Pine. MCA is approved to treat Hem-fir, Ponderosa Pine and Southern Yellow Pine, and MCA-C is approved to treat Hem-fir and Southern Yellow Pine.

None of the listed preservatives using this BMP are recommended for salt and brackish water immersion applications. ACQ, CA-B, CA-C, CuN-W, MCA and MCA-C are approved for Above Ground, Ground Contact and Fresh Water applications. EL2 and PTI preservatives are approved for Above Ground Use only.

Waterborne Preservatives - Arsenicals

ACZA – Ammoniacal Copper Zinc Arsenate

CCA – Chromated Copper Arsenate

Arsenical preservatives include Arsenate as one of the compounds in the formulation. The presence of this chemical often prompts additional scrutiny from regulators and others when used in aquatic applications. This places increased emphasis on practices to minimize the movement of the preservative into the environment.

Arsenical preservatives are formulated in two waterborne preservative systems:

- **Ammoniacal System** – Includes Ammoniacal Copper Zinc Arsenate (ACZA), which uses ammonia solutions to solubilize the copper. Following treatment, the ammonia evolves, complexing and immobilizing the copper.
- **Acidic System** – Includes Chromated Copper Arsenate (CCA), which depends on the reaction of chromium with the wood to help immobilize the copper and arsenate.

Conditioning

Wood products should be conditioned prior to treatment as defined in **Chapter 2: General BMPs for the Production of Preserved Wood**.

Treatment Processes

The following may be used in combination or alone at the discretion of the treater for all waterborne preservative systems listed above:

- Air drying or kiln drying wood prior to treatment may improve penetration of the preservative and the surface appearance and dryness of the wood after treatment.
- The empty-cell process should be used for full-length pressure treatment with waterborne preservatives as it will provide the desired retention. Full cell processes may be necessary when higher preservative loadings are required.
- The pressure applied during treatment is often slow to dissipate inside the wood. Failure to release this pressure can lead to bleeding of preservative in service. Applying vacuums after treatment can help relieve this internal pressure.

Post-Treatment Procedures

Because of differences in methods to immobilize the preservatives in the wood, there are separate practices for Ammoniacal and Acidic preservatives systems.

Ammoniacal System (ACZA)

There is no test to assess immobilization of alkaline copper systems. As a result, the BMPs for these materials are process-based. The processes primarily involve application of heat or vacuums to remove the ammonia:

- **Minimum plant hold times:** Products shall be stickered to allow for air flow and held in storage for a minimum of 3 weeks or when the total degree days equals 1,365 (average of the high and low daily temperature multiplied by the number days held – 21 days x 65°F = 1,365 degree days).
- **Kiln drying:** Material can be kiln dried to reduce the moisture content to 30% one-half-inch (12 mm) from the surface. The kiln cycle uses a dry bulb temperature which should not exceed 160°F (70°C).

- **In-cylinder air-flow with hold time:** When heat is incorporated into the final vacuum, the retort door is opened and air is drawn over the wood at a minimum rate of 250 cfm (7.03 m³/minute) for at least 3 hours. The material is then stickered and held for one week at a minimum temperature of 65°F (18°C).
- **In-cylinder air-flow:** Uses the same air-flow processes described above, but the material is placed in a closed chamber and subjected to a minimum 3-hour vacuum at not less than 22 inches Hg (75 kPa) until no ammonia odor can be detected.
- **Aqua-ammonia steaming:** With the wood in the retort, a 2% solution is added to cover the heating coils. Heat is applied for 3 hours, with a minimum of 1.5 hours at 190°F to 200°F (88°C to 93°C). Next, a 2-hour vacuum is applied at not less than 22 inches Hg (75 kPa). Fresh air is then drawn over the wood for 1 hour, then the wood shall be stickered and held for 1 week at 65°F (18°C).

Acidic System (CCA)

CCA is the only acidic system currently used for wood treatment. Immobilization of this system is driven by conversion of hexavalent chromium to the tri-valent state.

This process can be monitored by the chromatopic acid test (**AWPA Standard A74**) which can detect as little as 15 ppm of hexavalent chromium in the wood.

Increment cores removed from the wood are sprayed with chromatopic acid, which turns a pink color in the presence of hexavalent chromium. The color must be absent in the outer half inch (12 mm) of 4 of 5 increment cores. The process is primarily temperature and time dependent.

- **Air seasoning:** Can be used provided the temperature is above 50°F (10°C) until the material passes the chromatopic acid test.
- **Kiln drying:** Material can be kiln dried, provided the dry bulb temperature does not exceed 160°F (70°C) and the wet bulb depression does not exceed 20°F (11°C).
- **Steam conditioning or hot water bath:** Either method can be used, provided the maximum temperature does not exceed 220°F (105°C) per the following time/temperature schedule:

<u>Temperature</u>	<u>Time</u>
220°F (105°C)	6 hours
203°F (95°C)	9 hours
185°F (85°C)	12 hours
167°F (75°C)	18 hours
149°F (65°C)	24 hours

Technical Notes

Ammoniacal Copper Zinc Arsenate (ACZA) – Because of its ability to treat the refractory Douglas-fir heartwood, ACZA is most prevalent on the West Coast for use in industrial treatment of timbers, commercial decking for walkways and bridges, or piling used in aquatic environment applications.

The ammonia in ACZA facilitates movement of the active ingredients into the cell structure of the wood during treatment. Evaporation and removal of the ammonia following treatment is critical for the remaining ingredients to become stabilized. The procedures listed above are designed to accelerate the removal of ammonia and aid in stabilizing the chemicals in the wood.

Chromated Copper Arsenate (CCA) – CCA is considered an excellent treatment for most softwood species. However, achieving the required penetration in Douglas-fir may be extremely difficult. Therefore, CCA is not recommended for Douglas-fir marine piling or for treatment of interior Douglas-fir.

Creosote, Copper Naphthenate, DCOI and Pentachlorophenol

Preservatives

Creosote is an oil-like material that can be used directly or diluted in a heavy petroleum solvent. Copper Naphthenate, DCOI and Pentachlorophenol are both dispersed in organic solvents such as petroleum or biodiesel for application.

All of these preservative systems are immobilized in the oils delivered into the wood through pressure treating. As a result, the Best Management Practices (BMPs) for these systems differ somewhat from water-based systems.

Since these preservative systems each use an oil-type carrier, they share common BMPs as detailed below. These BMPs have been shown to improve the appearance of treated wood and reduce the potential for preservative movement in service.

Conditioning

Wood products should be conditioned prior to treatment as defined in **Chapter 2: General BMPs for the Production of Preserved Wood**.

Treatment Processes

The following may be used in combination or alone at the discretion of the treater:

- Air drying or kiln drying wood prior to treatment may improve the surface appearance and dryness of the wood after treatment.
- The empty-cell process should be used for full-length pressure treatment with oil-type preservatives if it will provide the desired retention. Full cell processes may be necessary when higher preservative loadings are required
- Full length and butt thermal treatment of naturally durable species such as Western Red Cedar can be used for poles.
- The pressure applied during treatment is often slow to dissipate inside the wood. Failure to release this pressure can lead to bleeding of preservative in service. Applying vacuums after treatment can help relieve this internal pressure. See Vacuum and Double Vacuum under **Post-Treatment Procedures**.

Post-Treatment Procedures

The following may be used at the discretion of the treater:

- **Expansion Bath** – Residual pressure inside the wood can lead to bleeding of preservative once the wood has been placed into service. Expansion baths help relieve this internal pressure, which leads to recovering excess preservative.

Follow the general procedures for expansion baths described in **AWPA Standard T1, Section 2.7**, as follows:

Minimum time: 1 hour

Temperature: 212°F to 220°F (100°C to 104°C), generally 10°F to 20°F (5.8°C to 7.6°C) higher than the original treating solution.

Post Expansion Bath Vacuum: 2 hours at not less than 22 inches Hg (75 kPa).

- **Steaming** – Steaming heats the wood to help relieve internal pressure and hasten recovery of excess solution. It also can help clean the wood surface. Steaming times are limited under AWWPA Standards because of concerns about the effects of excess heating on wood strength.

The procedures for steaming are as follows:

First Post-Treatment Vacuum: 2 hours at not less than 22 inches Hg (75 kPa).

Steaming: At least 200°F and not to exceed 240°F (93°C to 116°C) for 1 to 4 hours, depending on the wood species and commodity.

Final Vacuum: 1 to 4 hours at not less than 22 inches Hg (75 kPa).

- **Extended or Double Vacuum** – Vacuums help to relieve internal pressure and hasten recovery of excess treatment solution. EPA labels specify different minimum vacuum durations depending on the preservative and end use of the product. Apply an extended or double vacuum as follows, depending on local conditions (i.e. species, preservative, end product, weather):

First Post-Treatment Vacuum: Apply vacuum at not less than 22 inches Hg (75 kPa) for a minimum of 1 hour.

Release Vacuum (Double Vacuum): Allow cylinder to return to atmospheric pressure.

Final Vacuum: Re-apply vacuum at not less than 22 inches Hg (75 kPa) for a minimum 30 minutes up to 4 hours. Duration may be extended depending on local conditions.

Note: The 2024 EPA Registration Eligibility Decision (RED) for the Creosote requires a minimum double vacuum time of 3 hours. The 2008 RED for Pentachlorophenol requires a minimum double vacuum time of 1 hour 30 minutes for aquatic uses.

Technical Notes

Additional treating information to minimize environmental exposure of oil-type wood preservatives in pressure treated wood can be found in **AWPA Standard M20**.

When installing the preserved wood product in or near a water body, a visible oil sheen may develop on water surfaces. This sheen represents only a trace quantity of preservative and in most instances it will dissipate in less than 48 hours through biodegradation, evaporation or oxidation. Available data indicates this sheen, which decreases rapidly following installation, will not harm aquatic life nor will it enter the food chain.

Dual Treated Marine Piling

Preservatives

For marine uses that pose an extreme risk of wood deterioration, AWPA standards provide for dual treating using two preservatives. The preservative combinations include ACZA-Creosote and CCA-Creosote.

Dual treatment is only generally specified on the Pacific coast in areas south of San Francisco; the Atlantic coast between New Jersey and Florida; and along the Gulf Coast.

Conditioning

Wood products should be conditioned prior to treatment as defined in **Chapter 2: General BMPs for the Production of Preserved Wood**.

Treatment Processes

- Refer to BMPs for ACZA, CCA and Creosote for specific treating procedures.
- The Creosote treating process should be conducted with an objective of minimizing the amount of residual Creosote, which may occur on the surface of the dual treated product. Techniques will vary depending on experience, equipment, product type and wood species.

Post-Treatment Procedures

- After initial treatment but prior to the second treatment, follow the post-treating procedures for the waterborne treatment (ACZA or CCA) specified.
- **Vacuuming** – After the second treatment with Creosote and once the Creosote has been pumped back to the work tank, a vacuum of not less than 22 inches Hg (75 kPa) adjusted for location elevation for a minimum of 3 hours shall be applied to recover excess preservative and dry the material surface.

Technical Notes

When installing the preserved wood product in or near a water body, a visible oil sheen may develop on water surfaces. This sheen represents only a trace quantity of preservative and in most instances it will dissipate in less than 48 hours through biodegradation, evaporation or oxidation. Available data indicates this sheen, which decreases rapidly following installation, will not harm aquatic life nor will it enter the food chain.

Chapter 4: Quality Assurance Inspection Procedures

Unless otherwise defined, all terms and definitions in these procedures shall be as found in the American Wood Protection Association (AWPA) Book of Standards.

1. SCOPE

These Quality Control and Inspection Procedures are applicable to all pressure treated wood products produced under the BMPs for use in, above or in the vicinity of aquatic and wetland environments and are supplemental to the requirements of AWPA and/or other product specifications. Inspection in regard to product specification or treating standards is separate and in addition to the BMP inspection requirements.

Producers that choose to treat to the BMPs, but choose not to participate in the WWPI BMP Program are not permitted to use the BMP Mark, as described in Paragraph 2.2. They will be required to provide a certificate of compliance issued and signed by an independent Quality Control Agency of its choice and acceptable to the purchaser for each lot.

2. DEFINITIONS

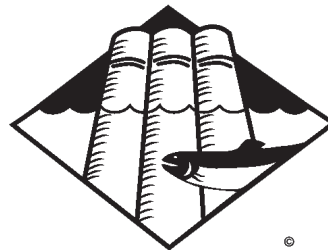
The following are definitions for elements of the BMP Quality Assurance Inspection Program:

2.1 Best Management Practices (BMPs)

Published parameters developed for use in specifying and producing material for use in aquatic and wetland projects in the U.S. and Canada. The BMPs were created and published by Western Wood Preservers Institute (WWPI), Southern Pressure Treaters' Association (SPTA), Southern Forest Products Association (SFPA), Wood Preservation Canada (WPC) and the Creosote Council.

2.2 BMP Mark

A mark registered under the Federal Trade Marks Act, as indicating certification of conformance to pressure treated processing and pressure treated product rules. The BMP Mark, when stamped or affixed to wood products, certifies that all the actions and quality certification requirements under these Quality Assurance Inspection Procedures have been met by both the treater and the Quality Control Agency.



The BMP Mark is the property of WWPI and shall only be used by authorized Quality Control Agencies and producing companies enrolled in the BMP Program.

2.3 Quality Control Agency

An organization that either (1) is acknowledged by WWPI as authorized under the BMP Program; or (2) designated acceptable by agreement between the purchaser and producer to issue a certificate of compliance for lots, to audit by testing and sampling the quality marked or certified BMP products treated in accordance with these Quality Assurance Inspection Procedures.

The Quality Control Agency shall have no financial interest in any company producing any portion of the products inspected and tested. The Quality Control Agency shall not be owned, operated or controlled by any such company.

2.4 Residence Quality Supervisor (RQS)

An individual designated by the treater and approved by the Quality Control Agency who performs the functions and meets the requirements of Paragraph 3.3. The Quality Control Agency shall initially and continuously thereafter determine that the Resident Quality Supervisor can demonstrate satisfactory knowledge of all manufacturing, sampling and testing requirements.

2.5 Seller

Each owner of the products described in these Procedures, beginning with the treater and including intermediate sellers between manufacture and use.

2.6 Purchaser/User

Entities, individuals or representatives who are responsible for the acquisition and installation of BMP treated wood products.

2.7 Treater

A company or firm engaged in the treatment of the products covered by these Procedures.

2.8 Lot and Lot Inspection

A lot for inspection at plants will be a single charge or a shipment, whichever is less. A lot for inspection at plant storage yards, at sales yards, in transit or at jobsites will be that material available at the time and place of inspection which contains products from only one treating plant and will contain only one species or species group and one preservative treatment.

2.9 Suspended for Cause

Suspension of production is required by an agency when it determines that a continuous non-conformance in treating to BMPs has been identified.

3. QUALITY CONTROL REQUIREMENTS

Products conforming to these Procedures shall be produced under a system of quality control with the following requirements:

3.1 Treating Equipment

The Quality Control Agency shall initially and continuously thereafter determine the manufacturing equipment meets the minimum requirements described in these Procedures. This review will confirm the plant has:

- (a) An effective operating system or procedure to remove residuals and debris from preservative solutions.
- (b) Facilities at either the plant or at a central laboratory for meeting all BMP test requirements.

3.2 Record Keeping

The plant will have in place an operating record keeping system for BMP products that include the following:

- (a) Maintaining records of consecutively numbered treating charges showing the basic data required in **AWPA Standard M2**, including the volume of wood, solution concentration, gallons absorbed and the results of the inspection of each completed charge. Records shall be retained for two (2) years after shipment.
- (b) Tracking and coding of all post-treatment processes and testing to assure compliance with BMPs.

- (c) A statement of compliance will be attached to each program treating charge report stating conformance to the BMPs.
- (d) Copies of the treating record and RQS report shall also be kept in a separate file and available to the Quality Control Agency during normal working hours.
- (e) An internal quality control program maintained by systematically checking treated wood for conformance to these Procedures and applicable **AWPA Commodity Specifications**.

3.3 Resident Quality Supervisor (RQS)

An individual shall be appointed by the treater and approved by the Quality Control Agency to oversee and/or perform plant quality control and:

- (a) Shall be responsible for conformance of all quality marked or certified products to the requirements of these Procedures.
- (b) Must understand all requirements of these Procedures and be able to recognize these requirements in each class of material produced.
- (c) Must understand the capabilities of the treating equipment and procedures in use and be able to judge its proper function in achieving the BMPs.
- (d) Shall have authority to stop any operation found to be causing non-conformance.
- (e) Shall have authority to correct any operation found to be causing non-conformance.
- (f) Must determine that all requirements contained in these Procedures are continuously met by reviewing treatment records and performing any and all necessary tests prescribed.
- (g) Record findings certifying compliance and attach a copy to the treating records.
- (h) Notify the Quality Control Agency of the availability of BMP material for review.

3.4 Quality Control Agency Duties

The Quality Control Agency described in Paragraph 2.3 shall check and approve the plant equipment, Resident Quality Supervisor and the first 5 charges and shall thereafter perform continuous checking and testing as specified by these Procedures:

- (a) Initially and continually thereafter determine that the requirements of these Procedures are being adhered to by the Treater.
- (b) Review plant quality control records noting any deficiencies.
- (c) Check plant equipment for compliance with Paragraph 3.1 at least once each 6 months.
- (d) Perform the sampling and testing necessary to confirm conformance to these Procedures and applicable **AWPA Commodity Specifications**.
- (e) Generate a report of findings to be reviewed with the RQS.

3.5 Compliance Documentation for Producers Participating in the BMP Program

Producers enrolled in the BMP Program may document compliance with the following:

- (a) The presence of the BMP Mark legibly stamped, branded, marked, end tagged or otherwise on each piece of material or lot or;
- (b) A certificate of compliance for each lot defined in Paragraph 2.8.

3.6 Compliance Documentation for Producers Not Participating in the BMP Program

Producers not enrolled in the BMP Program may document compliance with the following:

- (a) A certificate of compliance for each lot defined in Paragraph 2.8.

3.7 Non-conformance

If a product non-conformance is found by the Quality Control Agency or the Treater, at either a point under the Treater's jurisdiction or at a location not under his jurisdiction, the Treater will correct the non-conformance or remove the BMP Mark under the supervision of the Quality Control Agency.

The Treater should be afforded every opportunity to correct non-conformance. Where applicable, material may be re-treated and all re-treatment shall be in accordance with the appropriate AWPA Standards and these Procedures. If the lot fails to conform after re-treatment, the BMP Mark shall be removed from all pieces in the non-conforming lot and any certificate of compliance shall be withdrawn for the materials.

3.8 Suspension and Warning

A treating plant participating in the BMP Program suspended for cause from applying the BMP Mark to its products while under license of one Quality Control Agency shall not apply the BMP Mark under license of another Quality Control Agency until it has successfully re-qualified with the original Quality Control Agency.

A treating plant placed on warning for cause by its licensing Quality Control Agency shall not apply the BMP Mark under the license of another Quality Control Agency. Upon suspension and warning, WWPI will be notified.

4. MARKING

Treated material produced by companies registered in the BMP Program may be marked to indicate it is compliant with these Quality Assurance Inspection Procedures:

4.1 Product Identification

Products shall be legibly stamped, branded, marked, end tagged, or otherwise have permanently affixed a quality mark containing the following information:

- (a) Identification of the treating plant.
- (b) Preservative code and retention as specified.
- (c) BMP Mark where authorized.

4.2 Arrangement

The information required by this procedure shall be arranged in the BMP Mark format in compliance with the **AWPA Standard M6** and generally accepted industry formats. The BMP Mark may be included with other quality information or placed separately.

4.3 Location

The location of the quality marks shall be according to industry standards and/or user requirements.

4.4 Material Packaging

A Treater may not mix in one package material which bears the BMP Mark with material that does not bear the Mark.

5. REINSPECTION

In the event there is a dispute about the compliance of the product with treating standards or the BMP Program, a reinspection may be made resolve the issue.

5.1 Agency Determination

The settlement of a dispute between the producer and the customer or user of the product as to any BMP attribute shall be made by the Quality Control Agency.

5.2 Availability

The reinspection privileges shall be available to both buyer and seller upon request within 10 calendar days of receipt of the shipment for determining compliance with purchaser BMP specifications and settlement of compliance and invoices.

5.3 Procedure

The reinspection by the Quality Control Agency shall be conducted under the following procedures:

- (a) In performing a reinspection for treatment attributes, the Agency shall employ those tests approved in the applicable AWWA M or A standards (latest edition).
- (b) All attributes of treatment appearing on the BMP Mark or certificate shall be checked.
- (c) Complaints may be filed for illegible marks, incorrect marks and no marks where the BMP Mark has been specified. The Agency BMP Marks may be applied by qualified personnel of the Agency after compliance to applicable BMPs has been confirmed. Where material has been marked incorrectly, the BMP Mark shall be removed by any suitable means and any certificate of compliance shall be amended.
- (d) Lots failing to conform to BMP requirements shall be clearly marked as non-conforming and when possible separated from conforming material.

5.5 Compliance Variance

When 95% or less of a shipment or individual lots in a shipment conforms to the BMP requirements, the shipment or each lot of the shipment which fails shall be considered non-conforming and the Treater shall pay the cost of reinspection.

When a shipment or the lots within a shipment is more than 95% in conformance with the BMP requirements, the shipment or the lots within the shipment shall be considered conforming and the user shall pay the cost of reinspection.

5.6 Disposition of Non-Conforming Material

A customer is not required to accept non-conforming material. Non-conforming material found at reinspection shall be corrected or have the BMP Mark removed or the certificate of compliance withdrawn.

5.7 Records

Reports shall be issued to all parties to the compliant and copies shall be kept by the Quality Control Agency for a minimum of two (2) years.

If you have questions, need additional copies of this document, or guidance on specifying preserved wood in aquatic environments, please contact:



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For more information on wood preservative treating standards and the Use Category System, please contact:



American Wood Protection Association

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