

GUIDANCE ON ENVIRONMENTAL CONSIDERATIONS FOR THE USE OF CREOSOTE AND OTHER TOXIC PRESERVATIVES ON BRIDGES

Since wood is a renewable natural resource, you should not discount it as a material for bridge design. Preserved-wood products last 10 to 20 times longer than nontreated products. A key step in designing a bridge in an aquatic environment is the proper specification of the treated wood to be used. When used with the right specifications and in the proper environment, the risks of adverse environmental problems are greatly reduced. If not specified and used properly, creosote and other toxic preservatives containing copper, arsenic, and zinc will kill fish and other aquatic species.

We must incorporate Best Management Practices (BMP's) into all Service bridge design specifications for use of creosote and other toxic wood preservatives where there is a risk to an aquatic environment. The text below explains BMP's and the rationale for making this a requirement in the design of Service bridges. Other considerations, alternatives, and sample specifications below are provided as guidance for design engineers. We must set an example by not using products that have harmful effects on ecosystems.

Service bridge designers must be familiar with the environmental effects of wood preservatives, such as creosote and other toxic preservatives, in the design of wood or timber bridges. Most wood preservatives are toxic and if not properly used under the right conditions can cause adverse effects when used in an aquatic environment. Bridge designers need to consider the characteristics of various treated wood products in relation to the purpose of the project and the environmental characteristics of the site. For example, the environmental risks associated with treated wood placed directly in the water are different from those associated with wood placed above the water. In some cases concrete and steel may be more appropriate material for a bridge.

Prior to the design of any bridge, the design engineer should first perform a site visit to determine existing conditions. Do not use creosote and other toxic preservatives if the environment under the bridge includes stagnant water or wetlands. If the area beneath the bridge has a free flowing stream all year long or the area is completely dry, you can use creosote treated materials, if properly specified. Make the final selection of materials after accomplishing a life cycle analysis along with considering the type of environment. BMP's are widely used and produced on the West Coast due to endangered species. Southern Pine is an acceptable product on the East Coast, and a factory in Virginia using BMP's is available for the East Coast. The American Wood-Preservers Association (AWPA) establishes the appropriate applications of each product, the required penetration, and the required retention of a preservative.

The AWPA and the Western Wood Preservers Institute (WWPI) have done extensive research on the environmental effects of using preservatives on wood products. They have developed BMP's to be used in specifications for the use of treated wood in aquatic environments. These BMP's were developed to minimize any potential for adverse impacts to the environment from the use of pressure treated wood. The BMP's require that techniques be incorporated into the treatment and post treatment procedures to minimize the amount of chemical placed into the wood while assuring conformance with the AWPA standards.

The BMP's also require that a site-specific environmental risk assessment be conducted when a treated wood project is proposed for a stagnant or poorly flushed body of water. BMP's require

certification that treated materials are produced with minimum creosote application, thus minimizing the amount of surface residues that are available to migrate to the environment. BMP's require special vacuuming techniques and lower pressure treatment, vacuuming after the application, quality control, certification of the product and onsite inspection of materials prior to installation. Wood products are marked with a symbol that certifies BMP's were used.

The EPA regulates all wood preservatives under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA); however, treated wood products are not pesticides, and are not regulated under FIFRA. Personnel who purchase or apply creosote must be certified applicators, as it is considered to be a restricted use pesticide product.

BMP specifications are available at www.awpi.org/wwpi/BMP/intro.html. Below is a sample recommended specification that is being used successfully by other Federal agencies.

Materials

Furnish the following compliance certificate to the Contracting Officer upon delivery to the job site:

Lot certification of each charge for preservative, penetration in millimeters, and retention in kilograms per cubic meter (assay meter) by a qualified independent inspection and testing agency. In addition, have the producer of the treated products provide written certification that *Best Management Practices for Treated Wood in Western Aquatic Environments*, published by the Western Wood Preservation Institute and Canadian Institute of Treated Wood, were followed including a description and appropriate documentation of the applicable BMP's used.

The specific commodity standards that should be used to specify the preparation and use of various creosote treated products used in and above aquatic environments are:

- C:2 Lumber, Timbers, Bridge Ties and Mine Ties Pressure Treatment
- C:3 Piles
- C:14 Wood for Highway Construction
- C:18 Material in Marine Construction
- C:28 Laminated Beams

The four steps to assure products utilized in aquatic environments incorporate BMP produced materials are:

1. Specify the appropriate material in terms of performance as defined in the American Wood-Preservers' Association Standards.
2. Specify that the material be produced in compliance with the BMP's.
3. Require assurance that the products were produced in conformance with the BMP's.
4. Provide for onsite inspection prior to installation and conformance with any recommended installation practices.