

QUARTERLY PROGRESS REPORT  
January 1, 2005 to March 31, 2005

PROJECT TITLE: Extent of CCA-Treated Wood Used for Commercial Mulch

PRINCIPAL INVESTIGATOR: Dr. Helena Solo-Gabriele, Ph.D., P.E.

AFFILIATION: University of Miami, Dept. of Civil, Arch., and Environ. Engrg.

ASSOCIATE INVESTIGATOR: Dr. Timothy Townsend, Ph.D., P.E.

AFFILIATION: University of Florida, Dept. of Environ. Engrg. Sci., Solid & Haz. Wst. Prog.

COMPLETION DATE: May 15, 2005

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RCRA Sponsored Project

Title: Management and Disposal Options for CCA-Treated Wood Waste  
(July 1, 2003 to June 30, 2003)

Project Administration

1. The final report for this project has been drafted. The title of the report is, "Management and Disposal Options for CCA-Treated Wood Waste." This report will be revised in the near future and will include information obtained from the FCES conference held February 2004.

"YEAR 7" Research

Title: Extent of CCA-Treated Wood Used for Commercial Mulch  
(July 1, 2002 to June 30, 2004)

Project Administration

1. The final report for this project has since been completed and posted on the internet. The report was open for comments through November 2004. The report for this project has been finalized.

"YEAR 8" Research

Title: Environmental Impacts of CCA Contaminated Mulch  
(July 1, 2003 to May 15, 2005)

Research Activities

1. All samples have been processed and analyzed.
2. We have drafted the final report for the project (about 95% complete). During the analysis of the data, the team noticed that there was a mass balance problem associated with some of the analyses. These samples have since been reanalyzed and the data has been incorporated into the updated version of the report. The draft of this report will be completed shortly.

Information Dissemination

1. The web site: [www.ccaresearch.org](http://www.ccaresearch.org) continues to be updated.
2. Helena Solo-Gabriele provided a speaker presentation, a poster presentation, and co-moderated a speaker session during the Environment and Wood Preservation 6th

International Symposium sponsored by the Centre Technique du Bois et de l'Ameublement (Technical Center for Wood and Furniture) and the International Research Group on Wood Preservation. The title of the speaker presentation was "Technologies for the Management of Wood Waste Containing Metals-Based Preservatives." The title of the poster was "Speciation of Leachates from CCA-Treated Wood." The conference proceedings corresponding to the speaker presentation and abstract is as follows:

Solo-Gabriele, H.M., and Townsend, T., 2005. Technologies for the Management of Wood Waste Containing Metals-Based Preservatives. IRG/WP 05-50224-16. Paper prepared for the 6th International Symposium on the Environment and Wood Preservation, Cannes-Mandelieu, France, 7-8 February 2005. International Research Group on Wood Preservation, Stockholm, Sweden.

Solo-Gabriele, H.M., Townsend, T.G., Cai, Y., Khan, B.I., Song, J-K, Jambeck, J., Dubey, B., and Jang, Y-C. 2005. Speciation of Leachates from CCA-Treated Wood, IRG/WP 05-50224-27. Paper prepared for the 6th International Symposium on the Environment and Wood Preservation, Cannes-Mandelieu, France, 7-8 February 2005. International Research Group on Wood Preservation, Stockholm, Sweden.

3. Helena Solo-Gabriele and Tomoyuki Shibata participated in The International Symposium on the Environmental Impacts of Preservative Treated Wood for Achieving Healthy Environments held in Kyoto, Japan. They each presented a paper. Titles of the papers are provided below.

Solo-Gabriele, H.M., Shibata, T., Townsend, T.G., 2005. Disposal and Management Options for Wood Waste Containing Metals-Based Preservatives. Proceedings of the the International Symposium on the Environmental Impacts of Preservative Treated Wood for Achieving Healthy Environments, Kyoto, Japan. P. 1-4.

Shibata, T., Solo-Gabriele, H.M., Fleming, L.E., Shalat, S.L., Cai, Y., and Townsend, T., 2005. Non-Occupational Arsenic Exposures Associated with In-service and Recycled Chromated Copper Arsenate (CCA)-Treated Wood. Proceedings of the the International Symposium on the Environmental Impacts of Preservative Treated Wood for Achieving Healthy Environments, Kyoto, Japan. P. 15-19.

4. Brajesh Dubey presented a paper at the National Conference of the American Chemical Society held in San Diego, CA. The title of the presentation was "Disposal Issues for Preservative Treated Wood." An abstract was published as part of the conference proceedings. The citation for the abstract prepared for this conference is:

Townsend, T., and Solo-Gabriele, H., 2005. Disposal Issues for Preservative Treated Wood (Abstract). The Division of Cellulose Materials, American Chemical Society (ACS) National 2005 Spring Meeting -2005, San Diego, March 13-17, 2005.

5. Brajesh Dubey presented a paper at the SWANA Special Waste Symposium held in West Palm Beach. The citation for the abstract prepared for this conference is:

Solo-Gabriele, H., Townsend, T., Jacobi, G., and Dubey, B., CCA-Treated Wood in Consumer Mulches: Tools to Minimize Contamination. Proceedings 2005, Special Waste Symposium, Solid Waste Association of North America (SWANA), West Palm Beach, Florida, Feb 7-10, 2005. (Abstract)

6. The following journal manuscripts have been published.

Townsend, T., Dubey, B., Tolaymat, T., Solo-Gabriele, H., 2005. Preservative Leaching from Weathered CCA-Treated Wood. *Journal of Environmental Management*, 75: 105-113.

Stook, K., Tolaymat, T., Ward, M., Townsend, T., Solo-Gabriele, H., Bitton, G. 2005. Relative Leaching and Aquatic Toxicity of Pressure-Treated Wood Products Using Batch Leaching Tests. *Environmental Science and Technology*, 39: 155-163.

Stook, K., Dubey, B., Ward, M., Townsend, T., Bitton, G., Solo-Gabriele, H. 2004. An Evaluation of the Heavy Metal Toxicity of Pressure Treated Wood Leachates with MetPLATE. *Bulletin of Environmental Contamination and Toxicology*, 73(6): 987-994.

7. Tomoyuki Shibata was a recipient for the Ron Cockroft award which provides funding for his travel to the conference sponsored by the International Research Group on Wood Preservation. The conference is planned for Bangalore, India. Tomoyuki Shibata's presentation will focus on leaching of arsenic from CCA contaminated mulch.

#### "YEAR 9" Research

Title: Arsenic-Specific Stain for Identifying CCA-Treated Wood  
(July 1, 2004 to October 31, 2005)

#### Project Administration

1. The main contract for this project was executed during the last reporting period. A sub-contract was drafted between U.Miami and U.Florida. This subcontract is undergoing review.

#### Research Activities

1. An arsenic specific stain has been developed and work continues to further test the stain. Current efforts are focusing on establishing the shelf life for the stain.
2. Paperwork for a U.Miami/U.Florida patent have been submitted. The U.Miami patent committee has met and the research team has been informed verbally that the University plans to pursue a patent for the stain.

COURTESY REPORT  
For Complimentary Studies

Project Administration

1. The project funded by Florida International University (FIU) and the National Institutes of Environmental Health Sciences (NIEHS) has been completed and the results from this study have since been written up for possible publication.
2. Dr. Solo-Gabriele is currently collaborating with Dr. Stuart Shalat of Rutgers University and Dr. Lora Fleming of the University of Miami Medical School on an epidemiologic study evaluating the impacts of CCA-treated playgrounds on children. Sampling of playgrounds and children has been completed. The final report is currently being drafted.
3. Drs. Solo-Gabriele and Townsend assisted with the planning of a conference titled, "Environmental Impacts of Preservative-Treated Wood." Tim Townsend and Helena Solo-Gabriele are currently working on an edited book from material presented at this conference. So far they have received drafts for 26 chapters and these chapters are at various points within the review and final editing process.
4. A proposal was submitted in collaboration with the Town of Medley to the FDEP Innovative Recycling Grants Program. The title of the proposal is, "Augmented Sorting of Recovered Wood Waste Using Stain and X-ray Technologies." This proposal has since been funded through the FDEP. The main contract between the Town and U.Miami has been executed. A sub-contract between U.Miami and U.Florida has been initiated. Work with the PAN Indicator stain was initiated in early March. We are currently waiting for the XRF units to arrive.
5. Helena Solo-Gabriele and Martin Grosell of the University of Miami Marine School and Yong Cai of Florida International University are collaborating on a project focusing on toxicity testing of leachate from wood treated with chromated copper arsenate (CCA). This project will evaluate the effects of salinity on the toxicity of CCA-treated wood to a fish species.