QUARTERLY PROGRESS REPORT
October 1 to December 31, 2000

PROJECT TITLE: Fate of CCA-Treated Wood
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.
AFFILIATION: University of Florida, Dept. of Environ. Engrg. Sci., Solid & Haz. Wst. Prog.
COMPLETION DATE: June 30, 2001

"YEAR 3 SUPPLEMENTAL" Research
Title: New Lines of CCA-Treated Wood Research
(April 1, 1999 to November 30, 2000)

Research Activities

1. The draft of the final report for the "year 3 supplemental" project was completed. A paper copy was mailed to the FCSHWM. A digital copy was posted on the web. All TAG members and TAG meeting guests attending the prior 3 meetings were notified via email that the report was posted. TAG members were also notified of the report through regular mail. The research team plans to accept comments on the report through January 21, 2001.
2. Soil samples were re-digested and are currently being re-analyzed to confirm their metals concentrations. The primary purpose of these analyses was so that Naila Hosein (the graduate student from U.Miami assigned to the project) could execute the laboratory method and perform computations needed to obtain metals concentration in soils. She plans to use the results of the soil study as part of her Master's thesis. The secondary purpose of the analysis was to re-check, through independent laboratory analysis, that the results of the soil analyses are correct.

"YEAR 4" Research
Title: Fate of CCA-Treated Wood
(April 1, 2000 to June 30, 2001)

Research Activities

Leaching of Alternative-Chemical Treated Wood

1. The samples of alternative-chemical treated wood have been received and tested via third party for their proper retention level. Of the seven samples that were included as part of this study, 6 met the retention level requirements. An extra batch of untreated wood was sent to the alternative chemical manufacturer whose wood sample did not meet the retention level requirements. This sample has since been treated and is currently being held by the alternative chemical manufacturer to assure proper chemical fixation.
2. Most of the method development for the leaching study has been completed. Preliminary leaching experiments have been conducted. As part of method development leachate samples have been analyzed for metals concentrations as well as for most of the organic co-biocides associated with the alternative chemical treated wood products.

Arsenic Speciation in Groundwater Near Landfills

3. A subcontract was initiated with Florida International University in order to utilize their equipment and collaborate on the arsenic speciation study. Preliminary tests have been conducted on the new preservation system designed to speciate the sample upon collection. The ideal filter has been chosen. Additional work is needed with the cartridges that separate As(III), As(V), DMA, and MMA. Furthermore, samples have been collected and analyzed from two MSW landfills and from one C&D landfill. Results from these analysis will be presented at the next TAG meeting.

Miscellaneous Projects

1. Chemicals have been ordered to test a new stain that is theoretically specific to arsenic. The stains utilized during earlier research reacted with several different metals including copper. The arsenic-specific stain is important if alternative-chemical treated wood (all which contain copper) is to be distinguished from CCA-treated wood. The formula for the new stain was provided by Lehong Jin of CSI.
2. Samples of CCA-treated and untreated wood were sent to Dr. Stephen Kelley of the National Renewable Energy Laboratory for testing with near infra-red (NIR) spectroscopy. The purpose of these tests was to determine if the technology could distinguish between CCA-treated and untreated wood. The advantage of this technology (if it works) is that there are relatively inexpensive ($2-3K) hand-held models that are available. Results of Dr. Kelley's testing indicated that the technology appears promising. Dr. Kelley is confident that the more sophisticated NIR instruments will be able to detect CCA-treated wood from other wood types. A considerable amount of development would be necessary before the inexpensive hand-held unit could be manufactured for the purpose of separating CCA-treated from other wood types.
3. The U.Florida laboratory has initiated a set of arsine gas generation studies to determine whether dissolve arsenic is capable of forming arsine gas under reducing conditions typical of a landfill.

<u>Information Dissemination</u>

1. The web site for the project (www.ccaresearch.org) has been updated. The draft of the "year 3 supplemental" report has been completed and posted on the web page.
2. Helena Solo-Gabriele presented a paper titled, "Methods to Control Fuel Quality at Wood Burning Facilities" at the Bioenergy 2000 conference held in Buffalo, New York from October 15 – 18, 2000. The paper was presented as a poster and as speaker session which was intended to serve as the introduction to the poster. The paper was published within the proceedings of the conference. The first author of the paper was Monika Blassino. Helena Solo-Gabriele and Tim Townsend were co-authors.
3. Helena Solo-Gabriele met with Bob Inwards of Osmose in Buffalo, New York who provided a tour of the Osmose manufacturing and research facilities.
4. Helena Solo-Gabriele presented a paper, in conjunction with Dr. Boyd Kellet, in Gainvesville, Florida at the 13th Annual Agro-Medicine Conference.
5. Tim Townsend and his students met with Helena Solo-Gabriele in Gainesville, Florida to discuss the progress of the research project. John Schert attended a portion of the meeting.

"YEAR 5" Research
Title: Treated Wood, Evaluating the Toxicity During Disposal
(January 1, 2000 to June 30, 2002)

1. A pre-proposal was submitted to the FCSHWM titled, "Treated Wood: Evaluating Toxicity During Disposal." The pre-proposal was submitted on August 25, 2000.
2. A follow-up full proposal was submitted to the FCSHWM on November 1, 2000.
3. Helena Solo-Gabriele and Tim Townsend presented the proposal before the Center's Advisory Board on November 30, 2000.
4. Notice of funding was received by the research team via letter dated December 15, 2000.

COURTESY REPORT ON THE INNOVATIVE RECYCLING GRANT
Title: On-Line Sorting Technology for CCA-Treated Wood
(July 1, 2000 to September 30, 2001)

1. The web site for this project (http://www.eng.miami.edu/~hmsolo/sarasota/index_sara.htm) has been updated.
2. The site for the shelter has been graded. Form work has been placed in preparation of the concrete pour.
3. Two new accessories have been added to the conveyor design. These include a new spur conveyor and a shear arm which is currently being designed to remove CCA-treated wood in a more automated fashion. The primary portion of the conveyor (without the accessories) has been constructed.
4. The laser and the spectrophotometer portion of the LIBS detector system have been tested independently of one another and have been found to work well. Work has recently been initiated to interface the two pieces of equipment.
5. A Sarasota team meeting was held on December 5th, 2000 in Sarasota County to update team members on the progress of the project to date.

The next Sarasota team meeting will be scheduled for February 2001.