Quarterly Report of

EVALUATION OF THERMAL PROCESSES FOR CCA WOOD DISPOSAL IN EXISTING FACILITIES

To
Florida Center for Solid and Hazardous Waste Management
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PI: Chang-Yu Wu
University of Florida, Department of Environmental Engineering Sciences

Co-PI: Timothy Townsend
University of Florida, Department of Environmental Engineering Sciences

Co-PI: Helena Solo-Gabriele
University of Miami, Department of Civil, Arch. and Environmental Engineering

GRADUATE STUDENTS

Anadi Misra & Brajesh Dubey
University of Florida, Department of Environmental Engineering Sciences

Progress Report (September 2004-November 2004)

As per the proposal submitted to FCSHWM, our first task was to establish an inventory for existing wood-fired capable facilities in the state of Florida by compiling the permits approved by Florida Department of Environmental Protection (FDEP). Two categories were included in the inventory, one being the facilities that use wood as their fuel and the other being those that can possibly be converted to be able to burn wood. The inventory focused on facility capacity, types of fuel used and current air pollution control equipment in each.

Based on these guidelines, we have compiled an inventory list of 66 combustion facilities (31 wood fired facilities, 7 cement kilns, 14 WTE plants and 14 coal combustion units) after an intensive study of the permits provided by FDEP. It should be noted that the facilities listed in the inventory are the major facilities in the state of Florida. Smaller ones (10 in number) which don't have their permits posted on the web could not be collected. Data was collected in the following format.

Facility ID
Owner/company name
Site name
Address
Type of facility
Boiler Description
Maximum heat input rate
Fuel type
Air pollution control device

A summary of the inventory list of combustion facilities in Florida is presented in Table 2. The inventory shall give us a better understanding of the current status of combustion facilities in the state, which will be used in the future for making recommendations regarding which facility is best suited to curtail arsenic emission and leaching resulting from the incineration process.

A presentation focusing on the research plan and progress in the project was made in the Technical Awareness Group meeting held on 22nd October 2004 in University of Florida, Gainesville to invite feedback & suggestions from researchers and engineers in the field and FDEP officials regarding the project. The meeting was held jointly with other CCA related projects to allow a broader spectrum of CCA research to be presented to the audience.

On November 17, we visited the Thompson Baker Cement Plant operated by Florida Rock Industries to gain a better understanding of the processes as well as potential problems and advantages associated with incineration from the industry's perspective.

The research team has also established contact with researchers in Toronto and Sweden who are conducting active research concerning thermal processes for the

disposal of CCA wood to gain insights into the problems the face and how they deal with them. Contacts will continue to expand to other active researchers all over the world as the research project advances.

Preliminary work has begun regarding the design of an incineration system to evaluate potential sorbent materials for preventing arsenic emission & leaching from incineration products. Literature review is being carried out to identify the sorbents to be used in future experiments. Work has begun on developing a website to make the information related to this project accessible to general public. Table 1 presents milestones achieved as against the timeline set in the original proposal.

Table 1- Timeline for completion of major milestones

Milestone	**2004**				**2005**							
	S	**O**	**N**	**D**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**
TAG Meeting		•								•	•	
Task 1 – Inventory of Existing Wood-Fired Capable Facilities	•	•	•									
Task 2 – Survey of Available Pollution Control Technologies						•	•	•	•	•		
Task 3 – Evaluation of Potential Materials for Preventing Arsenic Leaching from Incineration Product			•	•	•	•	•	•	•	•		
Evaluation of Data	•	•	•	•	•	•	•	•	•	•	•	•
Preparation & Peer Review of Final Report									•	•	•	
Submittal of Final Report												•

The green boxes represent the work done as against the total work as set in the timeline in the project proposal.

Work to be accomplished in the next quarter (December- February)

- Identification of potential sorbents(based on literature review) that can control Arsenic emission during incineration and prevent leaching of Arsenic from the ash
- Designing a laboratory-scale incineration system for CCA wood & sorbent system for future experimental work

Table 2-Inventory of Combustion Facilities in Florida

Type	**No.**	**Types of fuels used**	**Air pollution control devices**	**Max. Heat input rate**
Wood Fired	31	**carbonaceous fuel** (bagasse, wood chips, rice hulls), **natural gas**, bark and primary clarified wood fibers, dry wood waste, combination of waste wood and paper(with some lesser amounts of peanut hulls, lumber, oily rags, oil soaked peat moss) MSW, Coal, No. 2 & 6 fuels, oil soaked paper towels, biomass, sugar mill waste, tires, landfill gas.	fly ash arrestor, wet caustic scrubber , SNCR, Multicyclone, ESP, venturi scrubber, multiple tube dry collectors, Joy type Impingement Scrubber, spray dryer absorber, fabric filter	2.0 -805 MMBtu/ hr
WTE	14	MSW	fabric filter baghouse, spray dry absorbers, activated carbon injection system, SCNR , dry scrubber, mercury abatement systems, electrostatic precipitator (ESP)	53.6-458 MMBtu/ hr
Cement Kiln	7	**Coal (bituminous usually)**, whole tires, propane, natural gas, petroleum coke, propane, No. 2 & 6 fuel oils, residual fuel oil	Baghouses, Scrubbers	290-437 MMBtu/ hr
Coal Fired	14	**Coal (bituminous, pulverized, latex coated, mixed with petroleum coke)**, **natural gas**, Nos.1,2 & 6 fuel oil, carbonaceous fuel, Briquette Mixture, Refuse derived fuel (RDF)	Cold side & Hot side ESP, flue gas desulphurization (FGD) unit, wet caustic scrubber , Selective Non Catalytic Reduction system (SNCR) , spray dryer absorber, and fabric filter baghouse	179.3-7172 MMBtu/ hr

*Fuels marked in **bold** are the major fuels