

QUARTERLY PROGRESS REPORT
March 1 – May 31, 2005

PROJECT TITLE:

Impacts of wood ash and CCA-treated wood on arsenic concentrations in soils and plants

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352-1951 x 208

WORK ACCOMPLISHED DURING THIS REPORTING PERIOD;

- Plant samples collected in the experimental area of Austin Cary, where hundreds of CCA-treated wood stakes were installed in 1950's, were oven-dried at 60°C;
- The plant material was ground using a Wiley mill to 60-mesh fineness for chemical analysis and then digested using a modified version of EPA Method 3050A for the Hot Block Digestion System (Environmental Express, Mt. Pleasant, SC). They were analyzed for total As and Cr, Cu using graphite furnace atomic absorption spectrophotometry (USEPA method 7060A)
- Arsenic concentrations in the plants were relatively low, ranging from 2 to 8 mg kg⁻¹, while Cr concentrations ranged from 0.9 to 4 mg kg⁻¹. No plant accumulation was detected for Cu
- Though As, Cr and Cu concentrations in many plant tissues were below detection limits (Cr <0.2, As <0.4, and Cu <5 mg kg⁻¹), elevated As and Cr were found in the plants growing in some sites.
- The highest As (463 mg kg⁻¹), Cr (1,144 mg kg⁻¹) and Cu (150 mg kg⁻¹) concentrations were found in the barks from the poles.

WORK TO BE ACCOMPLISHED DURING THE NEXT THREE MONTHS;

- Soil (surface and profile) collected from CCA-treated wood poles (based on their age e.g. 20 vs. 40 years) and initial CCA concentrations (type A or type C) in the Austin Carey Memorial Forest, on January 2005, will be screened through a 2-mm sieve and digested for analyses;
- Soil Al, Fe, C and pH distribution on the sites profile will be evaluated.
- Soil Al and Fe will be extracted with ammonium oxalate and subsequently analyzed by graphite furnace atomic absorption spectrophotometry.
- The samples will also be analyzed to pH using a pH meter and total organic carbon using a total carbon analyzer.