

The *Forest Industry Health Research Program (FIHRP)* has completed a study on metals exposure during Hog Fuel Boiler maintenance. A report is now available to members titled "**Exposure to Metals During Hog Fuel Boiler Shutdown Maintenance Activities**". To request a copy, phone Agi Lee at the Pulp and Paper Forum at (604) 777-1533, send a fax to (604) 777-1567 or email alee@paperforum.com. Non-members of the Forum may be charged for the reports.

EXPOSURE TO METALS DURING HOG FUEL BOILER SHUTDOWN MAINTENANCE ACTIVITIES

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A recent survey done by NIOSH at a plywood mill using fluidized bed combustors has shown that workers may be exposed to significant levels of manganese during cleanout and maintenance activities of fluidized bed combustors.

FIHRP initiated a study at one interior mill to identify workers' exposure to fly ash during hog fuel boiler shutdown maintenance activities.

Boiler preparation for maintenance activities includes: removing remaining fly ash (washing into front end hoppers or shoveling or vacuuming); hydroblasting the boiler; and building scaffolds. Boiler maintenance activities include: repairing the refractory and ID fan as required; cleaning the air heater and steam flue gas exchanger; and repairing and replacing hydrogrates as required. Welding and gouging are commonly done as part of various activities.

Personal and area samples were collected for most of the shutdown activities. A worker performing manual ash removal was found to have a peak exposure to total dust (21.38 mg/m^3). Exposures to metals for this sample were found to be below the WCB-BC PC or proposed PCs and the ACGIH TLVs. Boiler makers replacing hydrogrates which included welding/gouging activities had total dust exposure levels greatly exceeding the PC, i.e. 57.92 and 70.6 mg/m^3 . In addition, these workers had exposure levels at or above the PCs or proposed PCs and TLVs for manganese and lead, and at the action level for nickel (i.e. $1/2$ PC or TLV).

All other activities were found to have dust exposure levels below 5 mg/m^3 , and metals exposure levels below the PCs or TLVs, or below the limit of detection.

While hot spot water cooling was performed prior to ash removal, this procedure did not sufficiently wet the ash to act as an effective dust control measure. Thorough wetting procedures should therefore be applied prior to shoveling the boiler ash. Alternatively, vacuuming could be used. As an additional protection, workers may wear a half-face respirator with "HEPA" filter cartridges during shoveling/sweeping any boiler ash remains. During welding/gouging activities, workers should wear a half-face respirator with dust/fumes/mist cartridges. The use of portable local exhaust systems with filters is recommended.

(See also Bulletin no. 34 06/97)