

## **Ozone and Electromagnetic Fields at Pulp and Paper Mills**

## **FOREST INDUSTRY HEALTH RESEARCH PROGRAM**

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**FIHRP FOREST INDUSTRY HEALTH RESEARCH PROGRAM** has published a report titled “Ozone and Electromagnetic Fields at Pulp and Paper Mills”. The report is available to FIHRP members on the Pulp and Paper Employee Relations Services website at [www.paperforum.com](http://www.paperforum.com) or contact Scott MacLean by phone (604) 532-0642, by fax (604) 532-0639, or by e-mail at [smaclean@paperforum.com](mailto:smaclean@paperforum.com). Non-members of FIHRP may be charged for the report.

The Forest Industry Health Research Program funded a study by Vizon SciTec Inc. to investigate the relationship of ozone exposure levels in Pulp and Paper Mills with electric and magnetic field sources in those Mills.

The goal of field measurements was to evaluate the relationship of ozone concentrations present near 15 to 20 representative electromagnetic field sources at each of the two participating mills (referred to as Mill A and Mill B). This study also provides a review of the health effects associated with exposure to ozone and a discussion of the potential for worker exposure to ozone at pulp mills using ozone delignification in the bleaching process.

The monitoring results were analyzed individually for each mill as well as for both mills combined. For each set of data (Mill A, Mill B and Mills A and B) statistic analysis was done to compare reported amperage versus average magnetic field strength, reported voltage versus average electric field strength, reported amperage versus maximum ozone concentration, average magnetic field strength versus maximum ozone concentration, reported voltage versus maximum ozone concentration, and average electric field strength versus maximum ozone concentration.

As a result of this work, there is no evidence of a positive correlation between ozone and magnetic field strength. The correlation results for ozone versus the reported amperage, electric field strength and reported voltage were inconsistent and variable between the two mills.

The data suggests that a positive correlation may exist for ozone versus the reported amperage, the electric field strength and the reported voltage for electrical sources not equipped with electrical arc protection systems.

The results of the monitoring and information collected from Mill contacts indicate that there is a potential for workers to be exposed to ozone concentrations in excess of the WorkSafeBC Exposure Limits when working on or around electrical sources not equipped with electrical arc protection systems if this equipment was not de-energized. In contrast, the results suggest that there is little risk of worker exposure to ozone in excess of WorkSafeBC Exposure Limits when working on or in proximity to electrical sources equipped with electrical arc protection systems.

The limited information available in the literature and from industry contacts suggests that Bleach Plant workers at facilities using ozone as part of the delignification process may be exposed to ozone concentrations in excess of WorkSafeBC Exposure Limits during normal operations. There is the potential for exposure to concentration of ozone well in excess of the Exposure Limits if a leak or malfunction occurred in the system before the ozone reached the reaction vessel.