

OBJECTIVE

To determine the concentrations of gas contaminants in work areas at pulp mills in British Columbia.

SUMMARY

STUDY OUTLINE

A study was initiated under the Forest Industry Industrial Health Research Programme to obtain an overall assessment of the concentrations of gas contaminants in work areas at a representative cross-section of the kraft mills in British Columbia. Very little has been published to date on the levels of gas emissions inside pulp mills.

The first phase of the study, described in this report, involved familiarisation with sampling techniques and refinement of analytical methods for measuring hydrogen sulphide, sulphur dioxide, methyl mercaptan, dimethyl sulphide, dimethyl disulphide (collectively termed TRS/SO₂); chlorine, chlorine dioxide; and turpentine vapour. Non-routine procedures were used, including semi-continuous analysis of individual TRS/SO₂ gases by gas chromatography for periods of 3-7 days at a particular location in a mill; a recently developed method for grab sampling and analysis of chlorine and chlorine dioxide; and an adaptation of a standard procedure for turpentine analysis.

Two coastal mills, coded A and B, were sampled in late fall, 1979 and late summer, 1980. Work at Mill A was largely exploratory, providing a preliminary indication of TRS/SO₂ gas levels. At Mill B, a total of 1645 samples were collected between July 21 and September 23, 1980 and analysed for TRS/SO₂ gases in the brownstock washer area, batch digester floor, near the low pressure chip feeder to the Kamyr digester, and by the evaporators; 41 samples of bleach plant air were analysed for chlorine and chlorine dioxide; and two composite samples of air from the batch digester area were analysed for turpentine constituents.