

MEMORANDUM NOTE DE SERVICE

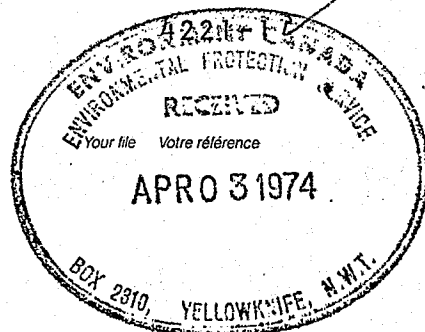
DATE April 1, 1974.

FROM: H. Veldhuizen,
DE: Head,
Air Pollution Control,
Northwest Region.

TO: C.A. Lewis,
A: District Manager,
Environmental Protection Service,
Yellowknife.

SUBJECT: GIANT YELLOWKNIFE MINES EMISSIONS
SUJET:

Our file Notre référence



The roaster stack sampling results from Yellowknife Mines Ltd. are not as meaningful as they could be. Because of the difficulties involved in measuring the arsenic content and weight of the concentrate feed, calcine, cottrell and baghouse hopper materials, the mass balance may be quite inaccurate.

The thimble method of stack sampling upon which, I believe, their results are based, is not recognized as an acceptable monitoring technique for the following reasons:

1. Initially, the thimble is rather inefficient at capturing the micron size particles until it develops a filter cake of its own. Even then, the submicron sizes are not retained.
2. Since literature indicates that some of the arsenic exists in the vapour state even at ambient temperatures, then it follows that this stack sampling technique does not monitor any of the gaseous form.
3. Past practice has been to select a point in the stack which appears to be representative of the average velocity flow profile. The probe is set at that point and the flue gases are then extracted at the average velocity. Since flows generally fluctuate over quite a range, there is no effort at maintaining isokinetic sampling conditions (sampling at the gas stream velocity). Results, therefore, are, at best, semi-quantitative.

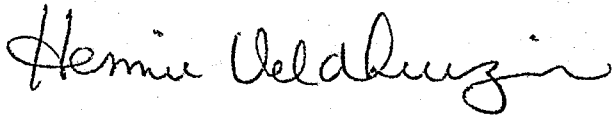
A number of stack sampling codes have been developed over the past several years which stipulate isokinetic extraction through a monitoring train that includes bubblers designed to capture material in the gaseous state. DOE is presently finalizing the federal code which is entitled "Standard Reference Methods for Source Testing & Measurement of Emissions of Particulates and Gaseous Pollutants From Stationary Sources" - EPSI-AP-74-1. Although the printed publications will not be available until May, two draft copies are attached; one for your review, and one for Giant Yellowknife Mines.

C.A. Lewis.

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Giant Yellowknife Mines Limited should be encouraged to implement a stack monitoring program using the above mentioned code. Meaningful emission results are required to supplement the ambient studies which were conducted last year and those to be activated this spring.



H. Veldhuizen.

HV/ec

Attach.