

LONG RANGE TRANSPORT OF AIR POLLUTANTSINITIATION OF THE PILOT MEASURING PROGRAMME IN 19721 INTRODUCTION

In the meeting of the OECD Council on the 18th April, 1972, the plan for the OECD project "Long Range Transport of Air Pollutants" was finally approved, and the programme formally started as of this date. For practical reasons, it was decided that the Pilot Measurement Programme should start in July and last until the 1st of July, 1973. The Central Project Unit will receive payment for the administration and coordination work for the second half of 1972.

It was originally supposed that the project would be started in January this year, and the programme has therefore been six months delayed. This period has, however, been used for necessary preparations with respect to the sampling methods, chemical analysis and other procedures. Therefore, although the programme has been delayed, the efficiency of the pilot measurement programme will probably have been improved.

The methods for determination of sulphate and strong acid in solutions have been tested in the laboratories of several of the participating countries with very satisfactory results. There is now little doubt that the Thorin method and the titration of strong acidity will give reproducible results in the different countries when standard samples are used for control. The XRF method for the determination of particulate sulphate has also been found to give reproducible results between several laboratories. The procedures for sampling of air and precipitation have been revised on the basis of collected experience after September 16th, 1971.

Finally, instructions for the reporting and presentation of the data from the ground sampling stations have been made to send out monthly surveys of the collected data together with a first interpretation of the results.

2 SAMPLING METHODS

The enclosed technical papers:

- LRTAP- 2/72: Determination of Sulphur Dioxide in Air and Airborne Sulphate in the Particulate Matter,
- LRTAP- 3/72: Determination of Strong Acid and Sulphate in precipitation,

give revised recommendations for the sampling and methods for chemical analysis. Most of the changes made with respect to the previous LRTAP papers are of an editorial nature and will not be commented. Some changes, however, have been made in the recommendations with respect to the sampling apparatus which deserve some more comments.

Detailed studies have been carried out at the Swedish Air and Water Pollution Research Laboratory to study the deposition of aerosol particles in tubes of various materials. On the basis of these results, the recommended specifications for the connection between the air intake and the filter holder has been changed so that now a borosilicate glass tube of 6 to 8 mm id. and not longer than 2 m is recommended.

There are indications that the air speed through the filter should be fixed, because this may affect the sampling under special conditions. This problem has been solved by recommending 25 to 33 mm dia. effective filter diameters for sampling rates of 2.0 and 3.6 m³/24 h, respectively. The same sond dimension should be used irrespective of sampling rate.

3 CHEMICAL ANALYSIS

The documents,

- LRTAP 4/72: Determination of Particulate Sulphur Collected in Whatman 40 Air Filter by X-ray Fluorescence
- LRTAP-5/72: Testing of Various Filter Materials for Collection and Determination of Particulate Sulphur in Air by X-ray Fluorescence,

give a detailed procedure for the determination of sulphate collected on Whatman 40 filters, and a short summary (by the CPU) of the evaluation and calibration experiments which have been performed at the Norwegian Institute for Atomic Energy at Kjeller and at the Swedish Air and Water Pollution Research Laboratory in Gothenburg.

In addition to this, a more detailed report by M. Bonnevie-Svendsen and A. Follo on the work of the Norwegian Institute for Atomic Energy will also be distributed later on.

Revised editions of the procedures for the spectrophotometric determination of sulphur dioxide/sulphate by the barium perchlorate/thorin method and for the titration of strong acid will be distributed later.

4 REPORTING OF RESULTS

The enclosed LRTAP document 6/72 "Reporting and Presentation of Results" gives recommendations as to how the results from the ground stations should be reported to the CPU.

It is proposed that these results should be reported monthly, within the 15th of the following month, in order to enable the CPU and the Data Evaluation Group to distribute a monthly survey together with a first interpretation within 2-4 weeks after receiving the results.

In order to facilitate the data handling, participants are asked to follow the recommended procedure as closely as possible.

5 LOCATION OF STATIONS

Most of the participants have by now indicated the location of their ground stations (in their answers to the questionnaire LRTAP 7/71 and 8/71). These sites have been chosen by the participants to meet the recommendations of the Planning Group of 9-11th June, 1971 (OECD, NR/ENV/71.27, Paris, 25th June 1971).

When the measurements have started, a general test will be made by correlating the data from the different stations. For stations not situated too far apart, this has proved to be very efficient in testing the representativity of the locations as well as for eliminating accidental errors in sampling, chemical analysis, and printing of data. Correlation testing will be performed by the CPU on all the received data.