

Summary of Session 1  
Emissions and Pollution Control  
in Municipal Scale Incinerators

by

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and

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This session consisted of six papers. The first paper described the status of the three main types of air pollution control devices presently available.

The first device discussed was the electro-static precipitator. The conclusions drawn were that at the present time this is the equipment with the most consistent record of meeting the current federal EPA emission limit of 0.08 based on Method 5 in the December 1971 Federal Register. We did not discuss the present uncertainty of emission control from facilities firing RDF and fossil fuel.

Bag filters were the second type of equipment discussed. Little actual operating data is available from four installations. The ensuing discussion resulted in the group's feeling that the full scale unit at E. Bridgewater, Mass. and EPA funded pilot unit ongoing test program at Nashville, Tenn. should be closely monitored. It was hoped that the operating results might point the way as to the advisability of using this type of unit on future installations.

Wet scrubber applications were then reviewed. It was reported that only 10% to 15% of the some 33 presently installed units have been accepted by regulatory agencies as being in compliance with their emission codes. This is apparently the type of unit where the most need for applied research exists.

The second paper focused on stack testing. The need to record more process operating data, along with the formal stack test, was expressed. Also, plant instrumentation should be calibrated and all equipment checked prior to the test to assure that it is capable of operating as intended. The discussion also resulted in suggestions for development of more detailed requirements as to the conduct and reporting of future tests.

The third paper discussed results of chemical analyses of scrubber waters and particulate catches at scrubber installations. During the discussion crystal formations on filters used in the tests were considered.

Several possible origins for the crystal formations were mentioned. No definitive conclusions were reached and this appeared to be another area where research was needed.

The fourth paper presented a review of stack testing based on experience gained testing a plant with an electro-static precipitator following a water wall, stoker fired furnace. It was shown how achieving proper plant operating conditions resulted in the plant achieving emission limit compliance. Discussion also brought out the desirability of checking out the plant operation and making preliminary stack tests prior to the conduct of formal tests.

The fifth paper described the problems encountered at Nashville with a wet scrubber application. Considerable adjustments and modifications were made to the scrubbers. A pilot bag house research program was conducted and showed promise. However, compliance time deadlines forced an immediate decision on corrective action, resulting in the installation of electro-static precipitators in place of the original scrubbers. The discussion centered on the bag house study and its continuance with funding by EPA. The results should be of future interest.

The last paper outlined the operating results of plants in the New England States. Here again it was found that electro-static precipitators could meet current emission limits, but plants equipped with wet scrubbers were generally unable to comply. The discussion of this paper pointed out the need for additional applied research to determine the reasons for this continuing problem.

An Ad-Hoc session was held in the afternoon to better define specific research recommendations.

#### Identification and General Prioritization of Research Needs

1) Determine performance and evaluate applicability of wet scrubbers for control of particulate emissions from refuse combustion facilities. Establish mass and chemical composition of scrubber water entering and leaving the scrubber. This would require applied research at full scale operating plants.

2) Characterization of carrier (flue) gases and particle emissions from incinerators.

- a. establish particle size distribution in and out of APC equipment (physical characterization)
- b. establish chemical composition of particles in and out of APC equipment (chemical characterization)

- c. establish chemical composition of other constituents of flue gases entering and leaving APC equipment

The implementation of this program would require the conduct of basic and applied research at full scale operating plants.

- 3) Conduct the same type of program at facilities operating totally, and partially, on RDF.

- 4) Characterize and develop potential treatment methods for wastewater discharges from refuse disposal facilities. This would require basic and applied research at pilot and full scale operating plants.

- 5) Develop information on the applicability of bag filters to refuse and/or RDF burning plants. and on the selection of proper materials of construction. This would require the conduct of applied research at pilot and full scale operating plants.

- 6) Develop and test improved emission monitoring equipment for specific applications. Correlate results with other monitoring equipment, where possible, and develop precision and accuracy statements. This would require the conduct of basic research during the development, with testing to prove equipment performance at full scale operating plants.

#### Other Recommendations

The Chairman and Vice Chairman of this session strongly recommend that groups of concerned and knowledgeable individuals be drawn from existing committees in the technical societies to assist and work with their counterparts in government in a continuing and meaningful way on identified research needs. This assistance would consist of further refinement of research priorities, establishment of study program scope and goals, and monitoring, oversight and advice during implementation of specific research programs.

#### List of Speakers for Session 1

Charles O. Velzy, session chairman Charles R. Velzy Associates, Inc.	Roger S. Hecklinger Charles R. Velzy Associates, Inc.
Robert K. Hampton, session co-chairman Hampton Equipment Corp. Inc.	Carroll W. Chambliss I. C. Thomasson & Associates
Anthony Licata York Research Corp.	James E. Thibault C. E. Maguire, Inc.
Peter J. Waznys and C. J. Desio Environmental Laboratories	