American Society for Testi

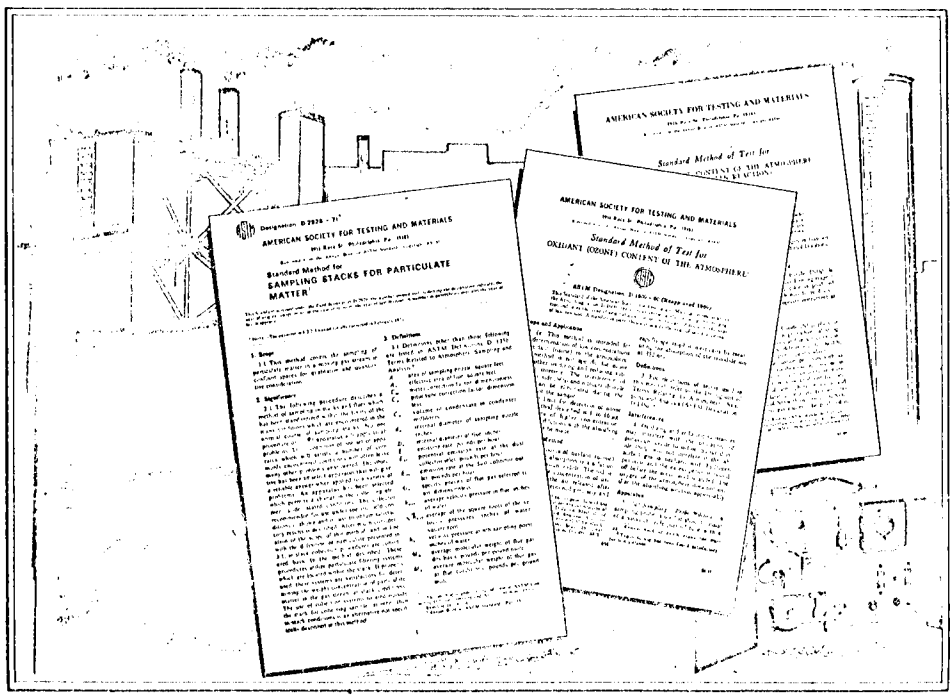
WALTER V. CROPPER
MANAGER, SPECIAL PROJECTS

AMERICAN SOCIETY FOR TESTING AND MATERIALS
1916 RACE STREET • PHILA., PENNA. 19103 • (215) 869-4200

Project Threshold

THRESHOLD

THE ASTM D-22 PROGRAM TO VALIDATE STANDARD TEST METHODS FOR IMPLEMENTING AIR POLLUTION CONTROL



1916 Race St., Phila., Pa. 19103 /215 LOcust 9-4200

0271411

TOWOLDMON0054273

As ASTM's Project Threshold takes off like a rocket, several desirable things will follow: (1) A major standardization problem will yield to the genius of the consensus system; (2) The cause of consensus standardization in this country will take three paces forward; (3) The so-called "private sector" will seize a golden opportunity to refurbish its tarnished image; and (4) The forces battling for cleaner air will win an important skirmish.

Project Threshold is the program, spearheaded by Committee D-22 on Sampling and Analysis of the Atmosphere, to learn how accurate are the ASTM standard methods for sampling and analysis of dirty air. The 35 methods to be studied cover what are believed to be all the contaminants that now seriously degrade the air we breathe. At least five contracting laboratories, together with qualified volunteer participants, will take samples in the field and analyze real atmospheres.

Such work is very expensive, and time is of the essence. Total cost is estimated to be $2 million. Corporations and trade associations are now pledging their financial support.

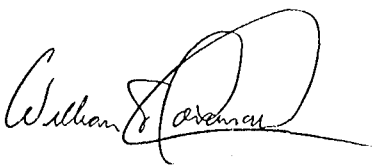
It is axiomatic in some quarters that, in the attack upon vast public ills such as air pollution, industry will move only as far as government drags or pushes it. But here is an example, one of the few that we know about, of the private sector summoning its resources, on its own initiative, to make a substantial contribution to what must, in the end, be a cooperative effort between industry and government. If it works, it will be the best demonstration in living memory of the strength and will of consensus standardization.

Make no mistake about it: government will regulate. Industries will be taken to court, enjoined or fined. Suits will be tried on the basis of too much pollutant in air people breathe. But in the beginning, as no member of ASTM must be told, is measurement. Unless we know with confidence the limitations of our methods of measuring these pollutants—and as of today we do not—regulatory proceedings can degenerate into quibbling and harrassment.

The fund drive to support Threshold has been launched. It is time to fish or cut bait. Our best chance to ensure that regulations are based on sound measurement is now. If this job is not done in ASTM it will not be done anywhere in the consensus system. That would be a big one down the drain.

ASTM believes in this program. ASTM is determined to do what we can to help it succeed. ASTM sees Threshold as possibly a turning point in the path for consensus standardization. If we can bring this off, we can demonstrate that our system can work in any area affecting the public welfare. As thoughtful observers of the standards movement in this country realize full well, that is a major question that will be resolved in the decade of the Seventies.

ASTM has recognized its responsibility and we are firing up the boilers. Industry is responding in a way that few of its more vocal critics would believe likely—more than sixty-five manufacturing concerns already have stepped forward with substantial financial and moral support. It is time for all good men to stop asking "Who goes first?" and to get aboard.



WILLIAM T. CAVANAUGH
MANAGING DIRECTOR

MATERIALS RESEARCH AND STANDARDS

0271412

TOWOLDMON0054274

American Society for Testing and Materials

Publisher of the World-Renowned Annual Book of ASTM Standards • 1916 Race St., Phila., Pa. 19103

Project Threshold

The ASTM D-22 Program to Validate Standard Test Methods for Implementing Air Pollution Control

THRESHOLD ASTM

Summary

The Board of Directors of the American Society for Testing and Materials proposes that American industry lead the way to fund a concerted well-planned effort to produce authoritative standard methods to measure air pollution.

Project Threshold will cost at least two million dollars and will require about three years of work. It was launched in March 1971 to the extent permitted by commitments totaling $420,000, and will be expanded as rapidly as further funds become available.

Without reliable, proven measurement standards, the achievement of national air quality standards will be beset by chaos – wasting time, talent, and capital. Validation of measurement methods, though costly, has large tangible benefits to the private sector, public agencies, the research community, and to individuals as taxpayers, consumers, and shareholders.

0271413

TOWOLDMON0054275

American Society for Testing and Materials
Publisher of the World-Renowned Annual Book of ASTM Standards • 1916 Race St., Phila., Pa. 19103

Project Threshold

The ASTM D-22 Program to Validate Standard Test Methods for Implementing Air Pollution Control

Introduction

Air pollution cannot be effectively controlled without standard methods that are widely acceptable because they are reliable and reproducible. There are many methods for measuring pollutants but almost nothing is known about how exact they are, hence none of them is widely accepted.

Research and development in numerous government, industry, and research laboratories have produced a very large number of techniques and instruments for taking samples and analyzing them for various pollutants. For any given contaminant, several different measurement methods may have been proposed because some investigators stress economy, others convenience; some simplicity, others sophistication. New principles are continually being found. All these differences in approach and technique inevitably give slightly different results. Such differences are hard to pin down, however, because rarely are different methods applied to exactly the same sample.

Even small differences in technique can amount to important differences in results because the amount of most contaminants is such a tiny proportion of the whole air. For example, the new ambient air quality standard for sulfur dioxide has the proportion of a pinch of salt in a ton of sugar (60μg SO_2 per cu m air is equivalent to 50 mg salt per metric ton of sugar).

ASTM Committee D-22 on Sampling and Analysis of Atmospheres has initiated an extensive cooperative program for determining the accuracy, repeatability and reproducibility of thirty-five standard measurement methods relating to air pollution control. These methods are valuable to government agencies, researchers, and industry. Funding is being sought from the entire private sector.

The first phase of Project Threshold is under way, dealing with seven widely-used procedures (Table 1). Additional methods will be validated as rapidly as funds permit.

The Environmental Protection Agency has a deep and long-standing concern about measurement technology. Since 1964, it has provided financial support for the Intersociety Committee on Manual Methods for Ambient Air

0271414

TOWOLDMON0054276

Sampling and Analysis (ISC). In this joint undertaking, experts representing each of seven professional societies* and ASTM study, select, edit, and compile recommended methods. About fifty of these have already been published individually and will soon be combined in a manual. The work of the ISC is an important input to the standardization processes of ASTM Committee D-22.

In 1970, EPA awarded a contract to Southwest Research Institute to conduct collaborative tests on as many as twenty methods accepted by the EPA Standardization Advisory Committee. The EPA methodology consists of a two-step process that involves sampling and analysis of controlled atmospheres in addition to on-site tests. There is no duplication between this work and Project Threshold. Committee D-22 welcomes data from the EPA work and all other qualified sources that will provide estimates of precision and accuracy of standard methods.

The EPA Office of Air Programs is represented on the Project Threshold Advisory Committee, which is charged with reviewing the conduct and progress of the Project. Thus a basis exists for direct and effective coordination and reinforcement of the two important programs.

*Air Pollution Control Association
American Chemical Society
American Conference of Governmental-Industrial Hygienists
American Industrial Hygiene Association
American Public Health Association
American Society of Mechanical Engineers
Association of Official Analytical Chemists

Development of Standard Measurement Methods

The American Society for Testing and Materials is the largest and most authoritative organization among those studying the available methods and selecting the most useful ones. ASTM Committee D-22 on Sampling and Analysis of Atmospheres comprises about 200 scientists representing professional societies, universities and research institutions, federal, state and municipal control agencies, industry, and individuals having a personal as well as professional concern about air pollution.

To find the best methods to be standardized, ASTM Committee D-22 draws on the experience of its members, the technical literature, and recommendations of such other organizations as the Intersociety Committee. When a study of the validity and the limits of applicability of the proposed method show it to be the best method available in the light of the existing technology, the Committee recommends it be published as an ASTM standard.

Broadly-based and thorough as it is, ASTM's development of standard methods relating to air pollution is weakened by the lack of adequate cooperative testing of methods to determine their precision and accuracy. Such cooperative ("round-robin") testing is the foundation for the world-renowned integrity of ASTM methods.

Cooperative testing of air pollution measurement methods is much more difficult and expensive than for other methods because of the transitory nature of the samples and the need to test them in the field under realistic use conditions. Few laboratory organizations in Committee D-22 can justify the large commitment of time and money needed to do the job voluntarily.

Committee D-22, after extensive study, concluded that a small group of highly-qualified, paid cooperating laboratories would be required, working in a thoroughly-planned, efficient program with a realistic time schedule. The ASTM Board of Directors has authorized an industry-wide solicitation of needed funds.

TOWOLDMON0054277

The ASTM Cooperative Testing Program

A major, concerted effort to obtain knowledge about precision and accuracy is therefore being undertaken by ASTM to produce authoritative standard methods for measuring more than thirty important pollutants. This is termed Project Threshold.

Project Threshold will cost at least two million dollars and will require about three years of work (Table 2). The ASTM Board of Directors is asking American industry to lead the way in funding the project, expressing a shared concern and involvement in air conservation. Forward-looking corporations and associations, recognizing the urgent need for standard methods, have already committed themselves for their fair share of this effort (Table 3). Several major industry associations are actively considering major support.

Approximately thirty-five methods will be cooperatively evaluated over a three-year period by five contracting cooperators, supplemented by qualified volunteer participants. The scientific planning of the work includes statistical gathering and analysis of the data in accordance with ASTM criteria.

A Project Advisory Committee, representing the cosponsors, will review the conduct and progress of the project and will interact with the Planning Subcommittee of D-22 (Table 4).

The cooperative tests will be conducted on real, rather than synthetic, samples under conditions of use. Personnel and equipment from each cooperating laboratory will be assembled at a field location suitable for each pollutant, to take their samples simultaneously and to perform the analyses separately either on-site or later, in their own laboratories.

Standard Reference Materials will be prepared by the National Bureau of Standards so that the accuracy of the methods can be proven. These materials also make it possible to validate future measurements and to calibrate measuring instruments. A Research Associate, employed by ASTM, will augment the NBS "Measures for Air Quality" program, which receives additional support from the Environmental Protection Agency.

The data and related findings will be reported as available to Committee D-22, providing the basis for adding statements on accuracy and precision pertinent to each test method. These will be confirmed by a letter ballot of the entire committee and of the Society.

(More detailed information will be found in Appendix A.)

Why ASTM?

As specifically relating to the control of air pollution, *measurement standards* are not to be confused with *regulatory standards* defining the quality of ambient air or limits on the discharge of pollutants. Whereas the setting of regulatory standards is the province of government, measurement standards are proper subjects for the consensus approach.

The organization and administration of ASTM have evolved over the years with one central goal in mind: To provide an authoritative, unbiased forum, free of control by any special interest, yet responsive to the needs of each, in which voluntary consensus standards are developed for the use and in the best interest of every segment of our society.

The word "voluntary" as applied to a consensus standard implies two things: first, it must have been developed with the voluntary cooperation of all concerned; second, the use of the standard by those affected must be voluntary. The word voluntary is implicit in the ASTM definition. Voluntary standards produced by ASTM have met the needs of government, industry, and the public for more than 70 years.

There are many advantages and benefits of voluntary standards. They combine the best thinking and experience of researchers and practitioners in government agencies, industrial organizations, universities and research

0271416

TOWOLDMON0054278

institutions. They constitute a common measurement "language," of particular value at the present time, when so much controversy and lack of understanding characterize the conservation scene. They are able to withstand legal scrutiny, an invaluable advantage in connection with demonstrating compliance with regulatory standards. They also strengthen contractual provisions for acceptable performance of control equipment.

Numerous state and federal agencies have adopted voluntary measurement standards for enforcing regulations, thus making their use mandatory. An example is ASTM D 56, Standard Method for Tag Closed Cup Flash Point, which is mandated by all fifty states to assure that kerosene and home-heating fuels are safe for public use. Also, many of the ASTM tests for water quality are incorporated in regulatory standards. Over the years, government agencies have found it advantageous to employ voluntary standard methods wherever these are available and applicable. The best mandatory measurement standards are those that have been developed through the voluntary standardization system, utilizing the consensus approach.

The alternative to voluntary standards is arbitrary ones, imposed by legislation or administrative order.

If the consensus approach were to fail to produce suitable voluntary measurement standards, government would have to compel use of arbitrary measurement methods, which have many disadvantages. It would be extremely difficult for the private sector to participate in this kind of standard-setting procedure, and there is no assurance that its voice would be heard. Decisions regarding selection, adoption, revision, and maintenance would likely be unilateral. Often, while such decisions were pending, access to the pertinent information might be restricted for administrative reasons. The review of such decisions would then take a more legalistic than technical tone.

The technical staffs in the private sector could not readily be kept informed regarding adoption or revision of arbitrary measurement standards. Although notices of such decisions would undoubtedly appear in *Federal Register*, that publication generally does not reach the technical community.

To promulgate, maintain, and publish standard methods require specialized staff and resources and is costly. Since these functions are now being carried out by ASTM it would be wasteful to duplicate them within a government agency.

Benefits

Measurement methods of proven reliability and known accuracy and precision have benefits far beyond those associated with enforcing regulations.

As aids to abatement and control, such methods have value to all regulatory agencies, whether municipal, state, or federal, and to all individuals as well. If methodology is standardized, even-handedness in drawing up regulations is promoted. Thus, the economic growth of a state will not be impaired by some technical peculiarity in its rules. At the same time, citizens are assured that their concern for a cleaner environment is not being betrayed by a misguided attempt to apply "rubber yardsticks."

The pollution control boards of all fifty states and of the principal cities will reap important tangible benefits. Among these is avoiding the job of collecting, editing, publishing and maintaining a large number of sampling and analysis procedures. This kind of work is specialized, tedious and costly and is already being done on a large scale by ASTM.

Another tangible benefit to all the public agencies, hence to taxpayers, is the familiar one of shared work in developing new and needed technology. No single agency can possibly develop and prove all the methods it must incorporate in its regulations. But, by doing its share in conjunction with others and in cooperation with experts from the research community and the private sector, it can make full use of the work done by all. No greater economy of technical effort can be imagined, as long as the story of the Little Red Hen is remembered.

The third tangible benefit is found in reducing the costs of litigation. Data based on reliable and exact measurements expose the weakness of ill-considered actions and strengthen the prosecution of worthy causes. The burden of proof rests with the party bringing suit or seeking injunctive relief. The legal standing of ASTM standard methods is well-established, reducing the need for expert witnesses and economizing the presentation of evidence.

0271417

TOWOLDMON0054279

The benefits of even-handed regulations, cooperative solution to a myriad of problems, and lucid litigation are gained also by the industrial sector, and thus by the general public who are customers, taxpayers, employees and stockholders. Just as the public bodies have no income other than taxes, so corporations have no income other than sales. Make no mistake: cleaner air will be expensive, and we as individuals are going to bear the cost in the final analysis. Whatever reduces these costs is to our individual benefit.

An area of great importance to the private sector and distinct from those just touched upon, is that of designing and constructing pollution control equipment. Engineering design demands quantitative measurements of input loading, composition, and capture. Acceptable performance of the installed equipment must be demonstrated factually to prove fulfillment of contracts. Enormous sums, in the aggregate, will be involved and over-design can be as costly as inadequate design.

The research community not only produces but consumes vast amounts of quantitative data. It is essential that this data have the virtue of comparability, so that the findings of investigators working in various places and at different times can be pooled or compared with confidence that differences and trends are not obscured by procedural differences or lack of common standards of reference.

A final benefit is perhaps the greatest of all. Uniformity of measurement methods will give the public greater confidence in the numbers that show progress toward achieving clean and healthful air.

Status of Project Threshold (July 1971)

The Project was successfully launched with a meeting of cosponsors on 9 March 1971 at ASTM Headquarters. As of that date, $420,000 had been committed by the fifty-nine cosponsors listed in Table 3. Dr. Richard H. Johns, a graduate in analytical and physical chemistry from the University of North Carolina, was on 8 February appointed Threshold Research Associate in residence at the National Bureau of Standards. A joint meeting of the Threshold "team" was held on 16 March to resolve questions of planning and to impart a full understanding of each step of the program.

The initial phase of the project calls for validating seven test methods selected as having the highest priority by the Project Planning Subcommittee of Committee D-22. These are listed in Table 1. Tests will be conducted on real, rather than synthetic, atmospheres under realistic conditions in Los Angeles, Bloomington, Ind., and Manhattan.

ASTM Committee E-11 on Statistical Methods is providing a task group to review the experimental design to make sure that criteria for good statistical practice are met. The expertise of Committee E-11 will be made available to Battelle during development of the statistical design.

The Project Threshold Advisory Committee will act on behalf of all cosponsors in reviewing the conduct and progress of the project and will interact with Committee D-22's Project Planning Subcommittee to keep all the cosponsors appropriately informed. It consists of a dozen or so cosponsor representatives, plus a representative of the Air Programs Office of EPA.

Funding efforts toward the ultimate goal of $2,000,000 will continue and will eventually involve the power, fuel, transportation, chemical processing, minerals processing, and construction materials industries. The present outlook is for commitments to reach one million dollars by the beginning of 1972 and to achieve the full two million dollar goal by 1973.

The Project Planning Subcommittee, of which Mr. B.T.H. Levadie is Chairman, is looking ahead to the next phases of the project, in which methods for measuring hydrocarbons, nitric oxide, hydrogen sulfide, mercaptans, and some types of particulates perhaps will be validated. However, new emphases and new methods may require changing present priorities. The concern about mercury and the development of new emission methods are examples.

TOWOLDMON0054280

Table I

PHASE ONE OF PROJECT THRESHOLD

A. Standard Methods to be Validated:

ASTM D 1607 –	Nitrogen Dioxide Content of the Atmosphere (Griess-Saltzman Reaction)
ASTM D 1609 –	Oxidant (Ozone) Content of the Atmosphere (Alkaline KI Method)
ASTM D 1704 –	Particulate Matter in the Atmosphere (Optical Density of Filtered Deposit)
ASTM D 1739 –	Collection and Analysis of Dustfall
ASTM D 2010 –	Total Sulfation in the Atmosphere by the Lead Peroxide Candle
ASTM D 2681 –	Lead in the Atmosphere
ASTM D 2914 –	Sulfur Dioxide Content of the Atmosphere (West-Gaeke Method)

B. Contract and Volunteer Cooperators:

Battelle Memorial Institute – Coordinator
California Department of Public Health – Volunteer Cooperator
Clayton, George D. & Associates – Contract Cooperator
Little, Arthur D., Inc. – Contract Cooperator
Midwest Research Institute – Contract Cooperator
Public Service Electric and Gas Co., New Jersey – Volunteer Cooperator
Research Triangle Institute – Contract Cooperator
Walden Research Corporation – Contract Cooperator
Western Electric Company – Volunteer Cooperator
York Research Corporation – Volunteer Cooperator

C. On-Site Testing Program:

Los Angeles, Calif. – August 1971
Bloomington, Ind. – October 1971
Manhattan, N.Y. – December 1971

0271419

TOWOLDMON0054281

Table 2

A. **Proposed Budget for Project Threshold**
(Basis: Cooperatively test thirty-five standard methods at three locations; one coordinating laboratory, five contract and three volunteer cooperators; duration mid-1971 to mid-1974; ASTM/NBS Research Associate, 1971-73 incl.)

Coordinating Laboratory	$ 350,000
Contract Cooperators (five)	1,000,000
ASTM/NBS Research Associateship	120,000
Travel for On-site Work	150,000
Equipment	50,000
Contingencies	80,000
Administration and Management	250,000
	$2,000,000

B. **Budget for Phase One of Project Threshold**
(Basis: Cooperatively test seven standard methods at three locations: one coordinating laboratory, five contract and three volunteer cooperators; duration March 1971 to Feb. 1972, incl.; ASTM/NBS Research Associate, 1971 and 1972)

Coordinating Laboratory	$ 80,000
Contract Cooperators (five)	160,000
ASTM/NBS Research Associateship	80,000
Travel for On-site Work	25,000
Equipment and Contingencies	15,000
Administration and Management	60,000
	$ 420,000

0271420

TOWOLDMON0054282

Table 3

COSPONSORS OF PROJECT THRESHOLD

(as of 1 July 1971)

Allis Chalmers Corporation
American Enka Corporation
American Telephone & Telegraph Company
Avery Products Company
Avon Products
Babcock & Wilcox Company
Bemis Company, Inc.
Black & Decker Corporation
Carborundum Corporation
Castle & Cooke Company
Caterpillar Tractor Company
Central Soya Company
Champion Spark Plug Company
Clow Corporation
Copper Range Sales Company
Deere & Company
Dresser Industries
Dyna-Sciences Corporation
Eaton Corporation
Ferro Corporation
GCA Corporation
Giffels Associates, Ltd.
Globe-Union Corporation
Grace, W. R. & Company (Construction Products Division)
Heinz, H. J. Company
Hershey Foods Corporation
Hoerner Waldorf Corporation
International Business Machines Corporation
Johnson & Johnson
Kaiser Aluminum & Chemical Company
Kawecki-Berylco Corporation
Kerr-McGee Corporation
Keystone Steel & Wire Company
Lever Brothers Company
Lilly, Eli and Company
Lone Star Cement Company
Magma Copper Company
Miles Laboratories, Inc.
Ontario Building Materials Group
Phelps-Dodge Company
Raybestos-Manhattan Corporation
Reynolds Metals Company
Rieth-Riley Corporation
Robertshaw Controls Corporation
Robertson, H. H. Company
St. Joe Minerals Corporation
Seagram, Joseph E. & Company
Smith, Kline & French Company
Sterling Drugs
Stockham Valves & Fittings
Teledyne Corporation
Thiokol Corporation
Timken Corporation
United Aircraft Corporation
Varian Associates
Vulcan Materials Company
Western Electric Company

Edison Electric Institute
Glass Container Manufacturers Institute, Inc.

10

0271421

TOWOLDMON0054283

Table 1

TABLE OF ORGANIZATION

Project Manager:
Walter V. Cropper, Director of New Projects – ASTM

ASTM/NBS Research Associate:
Richard H. Johns

Coordination Director:
John F. Foster, Battelle Memorial Institute

ASTM Committee D-22 Planning Subcommittee

B.T.H. Levadie –	Subcommittee Chairman and First Vice Chairman – Committee D-22
P.M. Giever –	Chairman, Committee D-22
John B. Pate –	Second Vice Chairman, Committee D-22
William T. Ingram –	Chairman, Subcommittee D22.06
Walter J. Smith –	Chairman, Subcommittee D22.07
Joseph G. O'Grady –	Secretary, Committee D-22

Project Threshold Advisory Committee
Joseph G. O'Grady, Chairman – Edison Electric Institute
Louis Schoen, Ex-officio – Office of Research and Monitoring, Environmental Protection Agency

Members

B. E. Bartlett	– Miles Laboratories	T. L. Hurst	– Kerr-McGee
M. Bozsin	– Ferro Corporation	G. J. Lyons	– Pratt & Whitney Aircraft
B. Broyde	– Western Electric	R. H. Mansur	– Reynolds Metals
M. G. Clower	– Joseph E. Seagram	R. J. Ryder	– Glass Container Manufacturers Inst.
J. A. Drais	– Caterpillar Tractor	L. A. Turner	– International Business Machines
W. B. Eastman	– Kaiser Alum. & Chem.	K. S. Vorres	– Babcock & Wilcox
J. D. Forrester	– Phelps-Dodge		

0271422

TOWOLDMON0054284

American Society for Testing and Materials
Publisher of the World-Renowned Annual Book of ASTM Standards • 1916 Race St., Phila., Pa. 19103

Project Threshold



Appendix A

DESCRIPTION OF ASTM PROJECT THRESHOLD

Objectives:

1. Determine the repeatability, reproducibility, and accuracy of thirty-five ASTM standard methods for sampling and analysis of ambient air and emissions from stationary and other sources.

2. Make NBS Standard Reference Materials and techniques available for continued validation of existing apparatus and methods as well as for future calibration of monitoring instruments.

Scope:

The project embraces thirty-five standard methods and recommended practices developed by ASTM Committee D-22 on Sampling and Analysis of the Atmosphere and approved by letter ballots of the Committee and the Society. These methods refer to all pollutants that are now believed to be significant to the problem of air conservation.

The project will require about three years for completion. Five contracting cooperators will carry out the work, supplemented by qualified volunteer participants. A coordinating laboratory will draw up the statistical design of the program, oversee its conduct, and perform the statistical evaluation of the results.

Interlaboratory studies of each of the thirty-five standard methods will be based on simultaneous on-site sampling and analysis of real atmospheres by at least five cooperators. The distribution of identical samples of real or synthetic atmospheres for analysis in the laboratories of the cooperators is not practical because changes in composition are likely to occur during storage and shipping and because, in many cases, such samples cannot even be prepared.

Localities suitable for on-site cooperative testing for specific pollutants will be selected by the Project Planning Subcommittee. A coordinating laboratory, under contract, will pinpoint a site capable of accommodating the cooperating teams and will take care of the logistical details.

0271423
TOWOLDMON0054285

Each cooperating laboratory, either under contract or voluntarily participating, will be informed of the time and place for on-site testing. Prior to assembling for field work, each cooperator will be required to familiarize his personnel with procedural details and to confirm that his apparatus conforms to the requirements of the standard methods. Any points in the standard method requiring clarification will be resolved before the field work is started.

Each cooperator will perform the sampling and analysis entirely independently of the others, but simultaneously. Each will report results only to the Project Manager. These results will form the basis for calculation of the repeatability and reproducibility limits.

Where applicable, estimates of true accuracy will be developed based on the addition of known amounts of pollutant to some of the atmosphere sampled or to solutions in which the pollutant is captured. The needed reference materials will be developed by the National Bureau of Standards as part of their Measures for Air Quality program. The project includes the addition of a Research Associate to this NBS program, to work principally on Standard Reference Materials and techniques to apply them for validating ambient air quality measurements.

The project's statistical design will be developed by the coordinating laboratory with advice from ASTM Committee E-11 on Statistical Methods to assure meeting ASTM requirements for interlaboratory studies. The Project Manager will transmit the field data to the coordinating laboratory for statistical treatment, including an analysis of variance, derivation of the limits of repeatability and reproducibility, and an estimate of accuracy or bias.

14 Appropriate statements of precision and accuracy will be submitted by the Project Planning Subcommittee to ASTM Committee D-22 for formal approval and will be incorporated in the published methods. Additionally, a report of the studies will be published by ASTM and the data will be permanently filed by ASTM, available to all.

In Table A-1 are listed the standard methods that have been approved by ASTM Committee D-22 and are subject to validation under Project Threshold. Additional standard methods are under consideration and will be validated in subsequent phases of the project. Many of these will be applicable to measuring emissions from stationary sources.

Organization:

The technical planning is the responsibility of a Project Planning Subcommittee of D-22 Executive Committee. The management of the project is the responsibility of the ASTM administrative staff; Mr. Walter V. Cropper has been named Director, New Projects, for this purpose. A Project Advisory Committee, made up of representatives of the sponsors, will review the progress of the work and interact with the Planning Subcommittee. The direct supervision of the on-site work will be the responsibility of Dr. John F. Foster, Coordination Director.

TOWOLDMON0054286

Table A-I

ASTM STANDARD METHODS SUBJECT TO VALIDATION BY PROJECT THRESHOLD

Nitrogen Dioxide Content of the Atmosphere (Griess-Saltzmann Reaction)	D1607-69
Nitric Oxide Content of the Atmosphere (Griess-Saltzmann Reaction)	*
Collection and Analysis of Dustfall	D 1739-70
Lead in the Atmosphere	D 2681-70
C_1 through C_5 Hydrocarbons in the Atmosphere by Gas Chromatography	D2820-69T
Formaldehyde in the Atmosphere	*
Inorganic Fluoride in the Atmosphere	D 1606-60 (1967)
Polynuclear Hydrocarbons in Particulate Matter	D 2682-71
Oxidizing Substances in the Atmosphere	D 2912-70
Total Sulfation in the Atmosphere	Revision of D 2010-65
Determination of Hydrogen Sulfide in the Atmosphere by Collection in Cadmium Hydroxide Slurry and Analysis by Methylene Blue	*
Sulfur Dioxide in the Atmosphere (West-Gaeke)	D 2914-70T
Sulfur Dioxide Content of the Atmosphere Method A: Conductivity	D 1355-60 (1967)
NO_x in the Atmosphere	*
Oxides of Nitrogen in Gaseous Combustion Products (Phenol-Disulfonic Acid Procedure)	D 1608-60 (1967)
Sampling Stacks for Particulate Matter	D 2928-71a
Particulate Matter in the Atmosphere (Optical Density of Filtered Deposit)	D 1704-61 (1969)
Mercaptan Content of the Atmosphere	D 2913-70T

*Subcommittee Recommendation

0271425

TOWOLDMON0054287

Some of the Federal regulatory agencies are cooperating beautifully in demonstrating one of our favorite arguments; namely, that although it is unquestionably the duty of the government to regulate, it is the duty of the so-called private sector to help provide the regulatory tools, i.e., standards.

For example, a news release from the Federal Water Quality Administration last fall announced completion of a series of laboratory tests to determine the percentage of phosphates used in 25 household detergents. The tests were made, according to FWQA, "to clear up any confusion as to the phosphate content in detergents and to serve as a general standard for the housewife shopping in the supermarket." Percentages listed in the release were different from those given by some other sources, added FWQA, because the government agency had used a "more accurate analytical method." And that was: "Method D-820 of the American Society for Testing Materials."

Now, if you are a detergent manufacturer, you may be none too enthusiastic about seeing your product placed high on the phosphate list and thus implanted in the public consciousness high on the list of alledged stream and lake polluters. But one thing is sure: If you *have* to appear on the list, you want the report to be accurate. You want the yardstick to be fair all around, to treat you and your competitors equitably, to have no "surprises" in it, to be, preferably, a yardstick that you yourself had some part in fashioning.

We believe the FWQA acted sensibly and responsibly in using the ASTM method for establishing its ranking, a method generated by the voluntary standards system and holding and meriting the confidence of government and industry alike.

A second example: A news release from the Federal Trade Commission dated December 30, 1970, announced that effective in July, the FTC will require that the minimum octane rating be posted on gasoline pumps in U.S. service stations. The rating that must be posted, says the FTC release, is "the research octane rating as described in The American Society for Testing Materials (ASTM) 'Standard Specifications for Gasoline' (D 439-70)."

Here again, petroleum refiners may or may not jump for joy at the news. But the heavy hand of regulation must certainly be lightened for them by the knowledge that the measuring stick is one they themselves helped to create, as responsible members of ASTM Committee D-2 on Petroleum Products and Lubricants. This is certainly more desirable than a test method that might have been handed down from Washington containing unknown booby traps for the unwary producer.

We said at the beginning of this piece that we believe it to be the "duty" of the private sector to help develop the standards that may eventually provide the backbone for government regulations. These two examples make it clear to us that it is also very much in the private sector's self-interest to do so. Because we have learned by now that regulation will come, whether or not the tools are ready. And few things are less in the public interest than regulation in a measurement vacuum.

In this space last month we went on at some length about ASTM's Project Threshold, which is the program to bolster our national effort to reduce air pollution by providing the absolutely essential first step: a set of certified methods for measuring pollutants. Whether you are for or against air pollution, you must agree that no program of clean-up can hope to succeed unless everyone—regulator and regulated alike—talks the same language. Threshold is succeeding because industry understands its basic premise, which is that private-sector involvement in standards development is a duty, a responsibility, and an opportunity.

William T. Cavanaugh

WILLIAM T. CAVANAUGH
MANAGING DIRECTOR

MATERIALS RESEARCH AND STANDARDS

0271426

TOWOLDMON0054288