















FOR READING

# NBS SPECIAL PUBLICATION **645**

U.S. DEPARTMENT OF COMMERCE / National Bureau of Standards

## Report of the 67th National Conference on Weights and Measures 1982



## NATIONAL BUREAU OF STANDARDS

The National Bureau of Standards<sup>1</sup> was established by an act of Congress on March 3, 1901. The Bureau's overall goal is to strengthen and advance the Nation's science and technology and facilitate their effective application for public benefit. To this end, the Bureau conducts research and provides: (1) a basis for the Nation's physical measurement system, (2) scientific and technological services for industry and government, (3) a technical basis for equity in trade, and (4) technical services to promote public safety. The Bureau's technical work is performed by the National Measurement Laboratory, the National Engineering Laboratory, and the Institute for Computer Sciences and Technology.

**THE NATIONAL MEASUREMENT LABORATORY** provides the national system of physical and chemical and materials measurement; coordinates the system with measurement systems of other nations and furnishes essential services leading to accurate and uniform physical and chemical measurement throughout the Nation's scientific community, industry, and commerce; conducts materials research leading to improved methods of measurement, standards, and data on the properties of materials needed by industry, commerce, educational institutions, and Government; provides advisory and research services to other Government agencies; develops, produces, and distributes Standard Reference Materials; and provides calibration services. The Laboratory consists of the following centers:

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<sup>1</sup>Headquarters and Laboratories at Gaithersburg, MD, unless otherwise noted; mailing address Washington, DC 20234.

<sup>2</sup>Some divisions within the center are located at Boulder, CO 80303.

Report of the

# 67th National Conference on Weights and Measures 1982

*Sponsored by the National Bureau of Standards  
Attended by Officials from the Various  
States, Counties, and Cities, and  
Representatives from U.S. Government,  
Industry, and Consumer Organizations  
Atlanta, Ga., July 12-16, 1982*

Report Editors: Albert D. Tholen  
Louis E. Barbrow  
Ann P. Heffernan



*United States Department of Commerce  
Malcolm Baldrige, Secretary*

*National Bureau of Standards  
Ernest Ambler, Director*



### ABSTRACT

These are the proceedings of the 67th National Conference on Weights and Measures, sponsored by the National Bureau of Standards, held in Atlanta, Ga., July 12-16, 1982, and attended by State, county, and city weights and measures officials, and representatives of the Federal Government, business, industry, and consumer organizations. Reports by the several standing and annual committees of the Conference comprise the major portion of the publication. Included also are papers presented by Conference officials and other authorities from Government and industry.

Major issues discussed at the National Conference included long-range plans for training, enforcement uniformity, national type evaluation programs and a new publication on type evaluation examinations, new design and performance requirements for commercial weighing and measuring instruments, cash and credit sales at retail motor fuel outlets, studies of model State laws and regulations, a tentative code for grain moisture meters, and adoption of several NBS Handbooks by NCSM.

Key words: Education programs; grain moisture; international recommendations; legal metrology; measurement assurance; metrication; model laws and regulations; packaging and labeling; pattern approval; specifications and tolerances; technology transfer; training; type evaluation, weights and measures.

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Opinions expressed in non-NBS papers are those of the authors, and not necessarily those of the National Bureau of Standards. Non-NBS authors are solely responsible for the content and quality of their submissions.

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(The members of this committee include the presiding chairmen of the other four standing committees and the Conference chairman, who serves as the chairman of this committee. C. H. Greene, New Mexico, will serve as chairman next year.)

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(Chip Kloos is appointed for a 5-year term to replace M. S. Thompson. Mr. Stephen replaces Mr. Similar as chairman.)

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STATE LABORATORY  
METROLOGIST WORKSHOPS

Monday, July 12, 1982

and

Wednesday, July 14, 1982

The Monday workshop concentrated on the activities of the regional measurement assurance programs (RMAP), the results of RMAP round robin testing, and the OWM program to certify state laboratories by measurement area in 1983. The Wednesday workshop was a joint session with the Task Force on Grain Moisture Meters. Test procedures and problems related to grain moisture meter testing were discussed.

Mr. Martin T. Coile, metrologist, Georgia Weights and Measures Laboratory, served as chairman of the 1982 NCWM Metrologist Workshops.

GENERAL COMMITTEE HEARINGS

Monday, July 12, 1982

and

Tuesday, July 13, 1982

Monday and Tuesday were set aside for general meetings of the five Conference Standing Committees. Notices of these general meetings were carried in the Conference Announcement booklet, in all pre-Conference publicity, and in the printed Conference program. Many delegates participated in the committee general meetings and presentations were given by representatives of weights and measures, industry, government, and consumer groups. The discussions that took place played an important role in guiding the committees in their deliberations and in the preparations of their final reports. The final reports of the committees will follow later in this publication and will reflect the discussions that took place and the actions taken by the Conference at the time the final reports were presented to the delegates.

## CROSSROADS FOR WEIGHTS AND MEASURES

Presented by EDWARD C. HEFFRON, Chief,  
Food and Dairy Division, Michigan Department of Agriculture  
Lansing, Michigan

Welcome to the 67th annual Conference on Weights and Measures. It is a privilege to be at this 67th Conference and especially to address the Conference as its Chairman. Each of us is here with a purpose that can impact on the lives of everyone in our country and of millions beyond our borders. It is an awesome responsibility that we have assumed, often underrated by those intimately involved, but one that can be met because of the organization and relationship of the weights and measures officials, National Bureau of Standards, Office of Weights and Measures, Conference on Weights and Measures, and the weights and measures industry.

The wisdom of this relationship was probably not fully envisioned when in January 1905 seven States and the District of Columbia met in Washington. Keep in mind the National Bureau of Standards was only formed a few years earlier on March 3, 1901. Although this 1905 session is regarded as the founding session of the National Conference on Weights and Measures, it was the second conference in April 1906 that decided upon a permanent organization and an annual meeting. The 1905 founding meeting was preceded by a nonacceptance of a National Bureau of Standards' invitation to a "State sealers' meeting" in 1903 and 1904. The formation of the National Bureau of Standards and subsequently the National Conference on Weights and Measures was certainly a product of a nonuniform, unscientific, and unreliable array of standards throughout the State and local jurisdictions. It is important to note that the formation of the National Bureau of Standards in 1901 was specifically to be the nucleus of a national standardizing laboratory. The triumvirate of the National Bureau of Standards, National Conference on Weights and Measures, and State and local weights and measures officials had met its first crossroads and realized its needs, how to meet them, and how to anticipate meeting future needs. History clearly indicates that the response to the first crossroads was correct. By 1912, the National Conference on Weights and Measures included almost 100 officials representing 25 States and 34 cities. It is a unique organization serving as an interface between the National Bureau of Standards and the State and local weights and measures jurisdictions.

The credit for wisdom of this Federal/State and local governmental relationship perhaps is more accurately placed with the writers of the United States Constitution. In article 1, section 8, the States agreed "The Congress shall have power to lay and collect

taxes, duties, imports and excises, to pay debts and provide the common defense and general welfare of the United States . . . to coin money, regulate the value thereof, and of foreign coin, and to fix the standard of weights and measures." This article continues "the powers not delegated to the United States by the Constitution nor prohibited by it to the States are reserved to the States respectively, or to the people." The language clearly indicates that the States delegated the power of "fixing" the standards of weights and measures while reserving to themselves the responsibility of regulation and enforcement.

The vision of the States in the early part of this century coupled with the actions of the U.S. Congress, National Bureau of Standards, and founders of the National Conference on Weights and Measures has permitted us at this time to maintain this critical NBS/NCWM relationship. The reason for and the benefit of this relationship continues. The State and local jurisdictions are located where commerce takes place, readily accessible to its lower court system, and close to the needs of the consumer. These regulatory jurisdictions also recognize their inherent "sovereignty uniquenesses" and that lack of scientific and technological capabilities limits their needed capacity to cause uniform, objective, credible regulatory actions.

At the same time the Federal Government, lacking the qualities identified above, alone has qualities unavailable to the regulator. No other single governmental agency has scientific and technical resources and credibility, coupled with objectivity and comprehensive communication with those in the area of weighing and measuring science and technology, as does the National Bureau of Standards. In addition, the National Bureau of Standards appears to fulfill the role of an objective, relatively nonbiased institution to establish and maintain authenticity of standards through programs of calibration of State and local standards, and audits and certification of State metrologists and laboratories. The National Bureau of Standards, through its Office of Weights and Measures, also has the role to fill of a single agency resource for expertise and comprehensiveness to serve as a foundation for weights and measures training programs, formal and informal.

During the past year as your Conference Chairman, I have had the opportunity to talk with many of you and meet with and talk many times with the National Bureau of Standards Director, Dr. Ambler, and his staff. In addition, I was able on February 9 of this year to testify before the U.S. House of Representatives Subcommittee on Science, Technology, and Research. In all of these cases I was carrying on the efforts of my predecessors and of you who have been involved in assuring the fulfillment of obvious roles of the National Bureau of Standards, National Conference on Weights and Measures, and weights and measures officials.



It is to these efforts that I will direct the remainder of this address. One of the rewards of serving as Chairman is the privilege of observing and commenting on key subjects that have a vital impact on us. To avoid any possibility of overloading and confusing these remarks, I have decided to limit my discussion to two issues before the Conference this year: the National Type Approval Program and the National Certification Training Program. These programs have been developed to their current status only because of the efforts and cooperation of many dedicated persons over an extensive period of time.

Progress has been possible because of the determination of the National Conference on Weights and Measures and the National Bureau of Standards, specifically Director Ernest Ambler. Dr. Ambler has been willing to listen, solicit ideas and other input, and implement changes directly and through assignment of talented and resourceful administrators and staff members. Notable have been the transfer of the Office of Weights and Measures into the Office of Product Standards Policy which is directly responsible to Dr. Ambler, and the commitment of the Bureau to a National Type Approval Program, a Certification Training Program, and other related program areas vital to the progress of the NBS/NCWM role fulfillment.

You and I at this meeting, as the voting members of NCWM, have the opportunity to assure the progression towards a National Type Approval Program and a National Certification Training Program.

The Committee on Education, Administration, and Consumer Affairs has worked diligently to bring forth a proposal for a comprehensive, flexible training program adaptable to each of our existing or, as the case may be, non-existing training programs. The proposal will for the first time coordinate training from a basic to an advanced level to include existing programs, self-help programs, and formalized training in various weights and measures fields. This Committee, with our approval at this meeting, plans to establish a working subcommittee to direct the development and implementation of modules intended for the training of the field inspector. The National Bureau of Standards has committed to the National Conference on Weights and Measures approximately \$150,000 per year for the next two years, beginning October 1, 1982, to permit necessary support for completion of the proposed modules. Representatives of the Committee have attended various regional and other weights and measures meetings to explain the program and solicit comments and recommendations. This has for many years been identified as a priority need -- it still is and is now ready to be considered by the Conference so that it can proceed to completion and utilization. This issue is basic to the very existence and success of our weights and measures regulatory program -- we are fortunate to be a witness and contributor to its progress.

The second issue (also one being considered at this Conference for approval to continue developmentally) is the concept of the National Type Approval Program (NTAP).

The need of a national type approval program was discussed as early as the 4th National Conference on Weights and Measures in 1908. A prerequisite to the formation of any type approval program was perhaps best expressed at the 10th conference in 1915 by Dr. S. W. Stratton, then Director of National Bureau of Standards. He stated, "It is our disposition not to meddle with those things that belong to the States, but there are a few things that ought to be national in character, in order that you may have uniformity."

Various attempts were basically all futile until 1976 when the 61st Conference endorsed and supported the National Bureau of Standards' prototype examination program. This led to action the following year by the 62nd Conference to establish a "Task Force on National Type Approval (NTATF)." The charge to the task force, headed by Ezio Delfino of California, was to ultimately recommend a course of action to strengthen both the national and State programs or to establish new programs. As a member of this task force, I was pleased to see input from all segments of the weighing and measuring community and was confident an acceptable proposal would be forthcoming. We are at this crossroad after realizing that many States have neither the resources nor the capability (nor the commitment in many cases) to do type evaluation testing and are fully supportive of a national program that will provide for uniformity of testing and acceptance of test results. At these crossroads we further realized that the National Bureau of Standards, by virtue of its role as a technical advisor to the States in developing national standards and as party in the study and development of international standards, has the experience and expertise to provide technical advice on a national basis. As I mentioned earlier, Director Ambler has committed the National Bureau of Standards to fulfillment of its vital supportive role in the National Type Approval Program. The key supportive roles of the National Bureau of Standards include: 1) establishment and maintenance of Design and Performance Standards into Handbook 44 through the National Conference on Weights and Measures; 2) development of test criteria and design checklists, Laboratory Authorization criteria, similarly through NCWM; and 3) issuance of a National Bureau of Standards type evaluation certificate.

I commend the Task Force on National Type Approval for its dedication over these years leading to the recommended "National Type Approval Program" concept. The presentation of this proposal for our consideration at this 67th conference is only one part in the progress towards workable reality.

I thank all the members of the standing committees, annual committees, various task forces, and the special groups and their

National Bureau of Standards and industry advisors for presenting to this 67th Conference many important issues for consideration. I am confident that you, as voting members of this Conference, will resolve this challenge by knowledgeable, deliberate actions that will cause a continuation of this progress in the pursuit of measurement equity.

#### COMMITTEE APPOINTMENTS BY CHAIRMAN HEFFRON

It is my privilege as your Conference Chairman to announce the appointments to the Standing Committees.

To the outgoing committee members we again express our thanks, and to the new committee members who are taking on these added responsibilities we express our assurance that this will be an enjoyable and rewarding experience.

The new appointees are:

##### COMMITTEE ON LAWS AND REGULATIONS

Mr. George Mattimoe, Deputy Director of Measurement Standards, State of Hawaii, is appointed for a 5-year term to replace Mr. Sam Hindsman whose term is expiring.

##### COMMITTEE ON SPECIFICATIONS AND TOLERANCES

Mr. Robert Probst, Director, Bureau of Weights and Measures, State of Wisconsin, is appointed for a 5-year term to replace Mr. Frank Nagele whose term is expiring.

##### COMMITTEE ON EDUCATION, ADMINISTRATION, AND CONSUMER AFFAIRS

Mr. Philip A. Stagg, Director of Weights and Measures, State of Louisiana, is appointed for a 5-year term to replace Mr. Robert Walker whose term is expiring.

Mr. Bruce Niebergall, Director of Weights and Measures, State of North Dakota, is appointed for a 4-year term to replace Mr. Al Christie who has resigned.

##### COMMITTEE ON LIAISON

Mr. Chip Kloos, Hunt Wesson Foods, Inc., Fullerton, California, is appointed for a 5-year term to replace Mr. Merrill Thompson, whose term is expiring.

#### Certificates of Appreciation

Chairman Heffron presented Certificates of Appreciation to:

Sam Hindsman	State of Arkansas, L & R Committee
Frank Nagele	State of Michigan, S & T Committee
Merrill Thompson	Chadwell, Kayser, Ruggles, Liaison Committee
Robert Walker	State of Indiana, Education Committee



#### STANDARDS CODE: TECHNICAL BARRIERS TO TRADE

Presented by DONALD S. ABELSON, Director,  
Technical Trade Barriers, Office of the U.S. Trade  
Representative, Executive Office of the President

The focus of my presentation today is perhaps a bit wider than that of other speakers who address this sixty-seventh meeting of the Weights and Measures Conference. I am here to talk about U.S. trade, a new international agreement that has been developed to help American exporters get a fair shake abroad, and how you, as State and local government officials can help out.

#### FUNCTIONS OF TRADE OFFICE

I work for a small office under the President that has as its sole concern coordinating the trade policy of the United States. In the twenty years since the Office of the U.S. Trade Representative was created it has dealt mostly with negotiating tariff reductions in an attempt to facilitate international trade.

Just recently, however, we finished negotiating a series of non-tariff measure agreements with the aim of reducing barriers to trade that were created by means other than tariffs. We have agreements on, among others, subsidization of exports, dumping of products, Government purchasing requirements and standards-related activities.

#### STANDARDS CODE

In the jargon of trade policy "standardization" and "certification" are called "technical trade barriers". Hence the official name of the agreement on standards-related activities is the "Agreement on Technical Barriers to Trade." Since its entry into force two-and-one-half years ago, it has been simply referred to as the "Standards Code."

The Standards Code came out of U.S. exporters concerns during the late 1960's that European Governments and industries were developing standards and establishing certification systems purposely to exclude U.S. goods. Moreover, an international survey revealed that standards-related activities were claimed as barriers in a number of trade cases.

The Standards Code's goal is the elimination of technical barriers or disincentives to trade -- those technical measures that can be manipulated by trading countries to unfairly prevent or restrict the importation of goods. In order to do this the Standards Code established a set of principles, which include:

- not using standards (both voluntary and mandatory), testing procedures, or certification systems -- 'standards-related activities' -- to create unnecessary trade barriers;

- providing access to national and regional certification systems;

- basing, when appropriate, domestic standards on international standards and those drafted in terms of performance rather than design criteria; and

- using open or transparent procedures (like the U.S. has) when engaging in domestic standards-related activities, thus creating a world-wide information network.

Let me assure you that these principles, along with the rest of the Code's obligations, were not arrived at overnight, but rather through negotiations that lasted for close to ten years. I had the good fortune to be involved in these negotiations during the Tokyo Round multilateral trade negotiations and to have as advisors such fine people as Whitaker and Barton of UL, Falk and McAdams of the electrical and electronics industries, Peyton of ANSI, and Cavanaugh of ASTM.

#### COOPERATION OF STATE AND STATE GOVERNMENTAL OFFICIALS

The best way for the U.S. Government to ensure that foreign countries live up to their Standards Code commitments is to keep careful watch over what they do and to be sure that we in the United States live up to our Code obligations. That is where you all come in. The Federal Government needs your cooperation in this matter.

We need to make sure that when State and local government bodies prepare, adopt, and apply standards or rules for certification systems, that they abide by all of the principles I just listed. That means,

- not using standards to create unnecessary trade barriers;

- providing access to certification systems;

- basing domestic standards on appropriate international standards and those drafted in terms of performance rather than design criteria; and

- using open or transparent procedures when engaging in domestic standards-related activities.

What this all boils down to is that it is now just as important when engaging in standards-related activities to consider foreign interests as it is to consider U.S. interests. Why? Because we want foreign governments to consider the interests of U.S. exporters when

they develop standards. That way we have the best chance of increasing the flow of U.S. goods in international trade and helping along our domestic economy.

#### EFFECT OF STANDARDS CODE ON TRADE

The Standards Code has been in effect for two years now and it appears to be working.

- I say this because we have been able to resolve standards-related trade problems in a noncontentious way.

- I say this because more trading nations have signed the standards code than any other nontariff measure agreement -- 35 countries, including most of western Europe, some Eastern block countries, Canada, Japan, and several developing countries such as Korea, Singapore, the Philippines, Pakistan, Tunisia, Argentina, Chile, Brazil, and Egypt. Even tiny Rwanda, in Africa, has signed the Standards Code.

- I say this because we have held numerous bilateral discussions on a Government level to iron out trade problems, using the Code's principles. For example, we have already met with the British, French, Germans, Japanese, and EC Commission officials.

- I say that the Code is working because the information network established in the Standards Code is working; working to alert foreigners of U.S. standards-related activities, and more importantly working to alert U.S. interests of foreign activities.

#### INFORMATION NETWORK

I would like to review the status of the information network. Under the Standards Code signatories are to make sure that all standards-related activities are published while they are still proposals so that interested parties in other signatories have the opportunity to provide comments. Further, the Standards Code requires that signatories notify the GATT Secretariat of all mandatory central Government standards-related activities. In the U.S. this means Federal Government mandatory standards. The GATT Secretariat then transmits these notices to other signatories, thereby providing, for example, U.S. interests the opportunity to comment on proposed French or Japanese Government mandatory regulations.

In the United States, a majority of notices on proposed voluntary standards can be found in the "ANSI Reporter" or other similar newsletters. As I understand it, a majority of notices of proposed State government voluntary and mandatory standards are published in official gazettes or newspapers, or are directly sent to concerned interests.

Regarding U.S. Government notices to the GATT, the National Bureau of Standards has established a U.S. inquiry point, the

"Standards Information Center," which weekly sends Federal Register notices to Geneva.

U.S. interests can find out about foreign notices to GATT through several U.S. publications, such as the "Commerce Business Daily" and in other publications.

The "Standards Information Office" has recently issued an annual report on the operation of the U.S. inquiry point, from which I would like to make the following summary:

The United States began reporting proposed regulations in April, 1980. The first official GATT notification, from Canada, was issued in February, 1980. During 1980, 30 proposed U.S. rules were reported to the GATT, out of a total of 99 notifications. In that year, 13 signatories reported at least one proposed regulation.

In 1981, the GATT issued 295 notifications. Twenty of the then 30 signatories sent the GATT at least one notification. The United States had the most notifications (91). Four other signatories - EC, Japan, Spain, and Sweden - issued 20 or more notifications. The average comment period for U.S. notifications was 54 days. The U.S. periods exceed the recommended guideline of 45 days established by the Standards Code Committee.

In 1982, we have thus far had 104 notifications, of which 18 are from the United States.

#### POLICY ISSUES-TRADE PROBLEMS

##### GATT Ministerial and Triennial Review of the Code

We in the Federal Government are now preparing for an important set of the General Agreement on Tariffs and Trade (GATT) meetings to take place this Fall, called the "GATT Ministerial". At these high-level meetings, all of the 90-plus GATT countries will engage in a dialogue aimed at improving current international trade practices. Included in this discussion, will be a review of the non-tariff measures codes, including the Standards Code.

The U.S. has developed a list of issues that might be addressed at this Ministerial meeting. In addition, we are preparing for the three-year review of the operation of the Standards Code, to be held just before the Ministerial meetings. At this three-year review, signatories will have the chance to review how the Code has functioned for them and to raise issues concerning the Code.

For example, the United States believes that the Code should cover all products traded internationally -- industrial and agricultural products. But, because the Code's coverage of "process" and "production method" standards is in dispute, many agricultural



products are not covered by the Code. We may want to look into this issue during the triennial review.

In addition, the United States has remained concerned that because it is excluded from regional standards-related activities, these may promulgate standards or maintain certification systems that are detrimental to U.S. interests. We may want to investigate the activities of regional bodies during the Code's triennial review.

It should be made clear, however, that we are not planning to 'renegotiate' the Standards Code. Like to most other signatories, it appears to us to be too early to engage in such an extensive dialogue. What we are seeking is a consensus interpretation of the Code's provisions.

#### BILATERAL ISSUES

Over the past two years, the U.S. Government has raised bilateral standards-related issues directly with foreign Governments in an effort to resolve problems.

There are two results from these bilateral discussions that I would like to mention.

- acceptance of test data: as we begin to discuss increasingly more complex standards issues with our trading partners, I become more convinced of the importance in establishing viable mechanisms to arrange for the mutual acceptance of test data, taking into account the highly technical nature of such undertakings. In order to accomplish this task, the Federal Government is committed to relying upon the expert services and talent in the non-Federal sector. For example, we worked closely with UL and AHAM officials in reaching agreement with Japan. It is only through close cooperation between the Federal and non-Federal sectors that the goal of acceptance of test data can be finally reached.

- third country trade problems: the problems that U.S. interests encounter in exporting are similar to those encountered by other exporters. We have a mutual interest in ensuring that foreign markets are indeed open. For example, we have ongoing discussions with the Government of Japan aimed at improving Japanese import testing and approval procedures. These procedures also affect foreign producers, and might be the focus of harmonized efforts. This has already happened to some extent in that when European requests are granted by the Japanese, U.S. producers also receive the benefits of such liberalization. But, Japan is not the only country in which our mutual interests lie. We are concerned about the trading practices of European countries and of the European Community itself.

#### CONCLUSION

It is our sincere goal to work with you in the area of weights and measures, and more generally in all standards-related activities

of State and local governments, to help sell U.S. goods abroad. We hope that we can demonstrate to foreigners that the U.S. market is the most open in the world and that we expect to gain treatment in foreign countries similar to that which foreigners have learned to expect in the United States.

## THE DIRECTION FOR WEIGHTS AND MEASURES AT THE CROSSROADS

An Address by ERNEST AMBLER  
Director, National Bureau of Standards

It is a great pleasure to be with you in Atlanta and address you as President of the National Conference on Weights and Measures. This is the fourth time that I have done so, and this has helped to reinforce the very special relationship between the National Bureau of Standards and the National Conference.

Since my first address to you in 1976, many changes have occurred; perhaps, most significant is the current struggle to control the cost of government at all levels. Budgets are being scrutinized for possible reductions, and at the same time, the complications and complexities of services that government must provide are increasing. Today's weights and measures devices are becoming "systems," with the increasing application of electronics and computers making these systems possible. While these new systems are bringing expanded capabilities and economies to their owners, they are introducing added demands on the State and local weights and measures official.

In recognition of the new and demanding roles that we all must play, this year's conference theme is "Crossroads for Weights and Measures." We are indeed at a crossroad filled with challenges. In my opinion, the challenges can be solved given goodwill and genuine cooperation among all interested parties. The entire weights and measures community represented in this Conference, the National Bureau of Standards, the manufacturers, and users are working closer together than ever before to resolve these challenges. As a result of many interactions during the past year, I believe our mutual goals and our individual limitations have been brought into clearer focus. For my own part, I believe the direction to take at the crossroad is clear.

I believe that the NBS leadership role which is needed is one that makes it possible for the State and local governments to exercise their individual authorities on a collective basis while achieving uniformity in legal metrology in the U.S. The continuing sponsorship of the NCWM, and the provision of technical assistance are all appropriate elements of NBS leadership. The increasing importance of weights and measures in international issues requires an effective partnership between the Federal Government and State and local governments. However, it is important to recognize that excessive dependence on NBS is not desirable. Along with budget cuts, the current Administration places a premium upon returning government functions to the State and local level to the maximum extent possible.

During the past year, I have held discussions on Weights and Measures with your leadership, with the Scale Manufacturers Association, and testified at hearings held by the House Science and Technology Committee, plus many other group and individual discussions. This has helped to clarify positions and achieve a more coordinated plan for the future.

Regarding the hearings held by the House Committee, I was very much surprised by the strongly critical testimony presented by representatives of this Conference and by the Scale Manufacturers Association. I had not realized the extent of the differences between your expectations for NBS support of weights and measures and our program commitments. To make sure that such divergences don't recur, I have personally become involved in reviewing our relationships and this program.

As a result of this review, several changes seemed appropriate and were implemented. First, I have reassigned the weights and measures program to my Office. This move was incorporated into a larger reorganization which brought several similar programs together under the management of Dr. Stanley Warshaw, who reports directly to me as Director of the Office of Product Standards Policy. Through this reassignment, the weights and measures program will receive more of my attention, as well as an enrichment of resources, by drawing upon the related skills in laboratory evaluation and standards development contained in the Office of Product Standards Policy.

I also provided additional funding this year which is being used to broaden the role of the National Bureau of Standards research staff in the use of new weights and measures technology. Results of that research will enhance the capabilities of States to upgrade their laboratories and field activities in addressing the rapid technical changes that have occurred.

My staff has also reviewed the technology issues related to the introduction of devices based on recent innovations in load cells, electronics, and microprocessors. We have concluded that an effective and appropriate way for the Bureau to assist in these areas is through the development of a national type evaluation program. Such a program requires special technical skills which could not be economically duplicated in every State, or even in every "type approval" State. The consequence of not having a national type evaluation program is continued non-uniformity among type-approval States, resulting in:

- (a) increased costs to device manufacturers who must seek approvals in multiple States; and
- (b) likelihood of barriers to Interstate Commerce due to varying State type approval requirements.



Moreover, without a national type evaluation program, the United States would be unable to fully participate in international certification arrangements (e.g., within OIML), which are expected to come into existence in the future. The current situation will also lead to continued introduction of nonconforming weighing and measuring devices into non type-approval States. These trends, both national and international, indicate the need for the development of a nationwide type evaluation program which is uniform and more efficient than the current combination of the prototype examination program at NBS and the 14 State programs. One of the principal benefits to the weights and measures officials of a national type evaluation program will be the provision of descriptions of the new devices and straightforward instructions for use by the local inspector in testing the new devices.

In 1976, your Policy and Coordination Committee established a "Task Force on National Type Approval Program" to develop the concept. The Task Force was organized with representation of weights and measures officials and of the Associate Membership. The Task Force focused on the design of a program to make better use of nationwide resources and at the same time satisfy some of the concerns facing the Nation by developments in device technology.

It was also the consensus of the Task Force members that any national system should be developed in an incremental fashion.

The Task Force on Type Approval has recommended a preferred concept of "A National Type Approval Program." My staff has developed an NBS plan to:

1. Chart the path to follow by all parties involved in establishing a national program; and
2. identify the roles, responsibilities, and resources needed to establish and operate the program.

Our plan has been submitted to your officers and Task Force members. Your Policy and Coordination Committee is requesting "the approval of the Conference" this week, in order to "proceed with the development of a national program based on the concept proposed by the Task Force."

In this tight economy, with limited Federal resources, it is essential that everyone with a role to play in developing this program make a full commitment. The need for domestic uniformity and enhancement of industry's international trade ability are valid reasons to work towards a national program.

I would now like to clarify what I see as the lines of demarcation between NBS and State responsibilities in this effort. For our part, I am committing the National Bureau of Standards to:

- coordinating the development of the program,
- developing criteria and procedures for laboratory authorization,
- designing the evaluation certificate and attachments and
- providing technical advice and assistance to the Conference committee in the development of evaluation criteria and test procedures.

Our plan calls for the implementation of the program in October 1984.

In order for this timetable to be met, several milestones are necessary which are the responsibility of this Conference's membership.

The concept must be approved at this Conference.

Type evaluation test criteria developed by your Specifications and Tolerances Committee need to be reviewed and adopted.

Laboratory authorization criteria and procedures being developed by NBS need to be reviewed for adoption at next year's meeting.

A model regulation recognizing the national type evaluation certificate must be developed by your Laws and Regulations Committee, approved by NCWM, and legally adopted in all the States.

I also want to say a few words about training. NBS now trains the State metrologists, and I believe that the States and the National Conference on Weights and Measures are well satisfied with the training. The training of State metrologists is a task NBS is willing to undertake because it supports the transfer of technology to the State laboratories. This enables your laboratories to use this technology while releasing NBS resources to work on measurement research.

It should be clear, however, that NBS has neither the mission, skills, nor resources to provide the training needed for the 3,000 State officials nationwide. The only place to do that job is locally, using your own resources and those of industry or those available to you at local schools, community colleges, and universities. However, because of the rapid introduction of electronic technology into the marketplace, NBS plans to support this Conference in developing training material to assist the Conference in a "start-up" so that you can "catch-up". NBS intends to make a grant in two annual installments of \$150,000 in 1983 and \$150,000 in 1984 to the Conference to support the development of a National Training Program. We expect the Conference leadership to manage these funds, emphasizing the development of electronic training and its integration into the overall primary training manuals currently under development. This one-time grant is intended to provide you time to plan for and to obtain the resources to accomplish additional future training needs.

I certainly understand the concerns that have been expressed by the NCWM this past year. NBS has no intention of abandoning the close

association with the States, this Conference, and the related private sector interests. However, the Bureau cannot simply respond to every request for support.

In conclusion, let me repeat that weights and measures organizations across the country are at a crossroad. We must make sure that the State laboratories, which we helped to equip over the years, have the basic capabilities to do their job--that the instruments are properly calibrated, that there is assurance that measurements made are proper, and that the metrologists in those laboratories possess the technical knowledge for using their instruments. Today's economic climate and technical challenges demand that we require proper and effective expenditures of our collective resources. Resources should not be expended in any program that is deemed to have limited utility or cost effectiveness.

The development and implementation of a national type evaluation program requires the commitments by all of you that I have outlined and that are detailed in the NBS plan being reviewed by your leadership.

I expect us all to move through this crossroad with confidence, determination, and cooperation.

### PRESENTATION OF HONOR AWARDS

Ernest Ambler presented Honor Awards to members of the Conference who, by attending the 66th Conference in 1981, reached one of the attendance categories for which recognition is made--attendance at 10, 15, or 20 meetings.

#### Award Recipients

##### 20 Years

Warren J. Dubsky  
Chester S. Zmudzinski

Dresser Industries, Incorporated  
St. Joseph County, IN

##### 15 Years

William G. Dox  
Walter F. Gerdorf, Jr.  
Edwin M. Hanish  
Lyman D. Holloway  
Charles W. Moore

Monmouth County, NJ  
Tokheim Corporation  
Laporte County, IN  
State of Idaho  
Madison County, IN

##### 10 Years

James H. Akey  
James C. Blackwood  
Vincent J. Del Giudice  
Kenneth F. Hammer  
Arnold J. Heilman, Jr.  
Raymond Helmick  
D. J. Hine  
Alfred E. Johanson  
Patrick E. Nichols  
Austin T. Rhoads  
Norman M. Ross  
Guy J. Tommasi  
Raymond R. Wells

State of Wisconsin  
City of Dallas, TX  
Del Giudice Associates  
Colt Industries  
City of Allentown, PA  
Peabody Coal Company  
Basic Resource Services, Inc.  
Foremost-McKesson, Inc.  
Alameda County, CA  
Milk and Ice Cream Associations  
City of Omaha, NE  
City of Middletown, CT  
Seraphin Test Measure Company



REPORT OF THE ASSOCIATE MEMBERSHIP COMMITTEE

Presented by THOMAS M. STABLER, Manager  
Toledo Scale Company

The Georgia Department of Agriculture is the co-sponsor with the Associate Membership Committee of the outing and chicken barbecue at Stone Mountain on Wednesday evening, July 14, 1982, and has made all arrangements for transportation, the meal, cold drinks, and stern-wheeler boat ride on Stone Mountain Lake. The Department has assured Conference attendees unparalleled "Southern Hospitality". The Associate Membership Committee is grateful for the assistance and fine cooperation of all who participated in the arrangements.

The Associate Membership Committee also recognizes and applauds the eighty individuals, firms, and associations that have contributed to the industry-sponsored event each year at the National Conference on Weights and Measures. This enjoyable event brings industry and officials together, some with their families, in a relaxed atmosphere in contrast to the full schedule of conference work. The Associate Membership event is always well attended and appreciated by Conference Delegates.

As a follow-up to discussions concerning increased participation by Associate Members in conference committee deliberations, the Associate Membership supports the concept of open meetings at all sessions of conference committees. Further, we suggest that if a closed meeting is warranted because of proprietary topics, notice to this effect should be given well in advance of the committee meeting.

In general, however, open meetings are in the best interest of officials and industry alike due to shared goals of equity and uniformity. All interested parties should have the opportunity to attend and participate in committee meetings associated with the National Conference; and, Organizational Manuals and Conference Announcements should reflect this policy.

It is the view of the Associate Membership that open meetings enhance deliberations of the Conference and contribute significantly to the democratic process which NBS and all participants justifiably endorse.

We look forward to serving the National Conference Members again next year in Sacramento.

## ASSOCIATIONS' SPOT REPORTS

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### NORTHEASTERN WEIGHTS & MEASURES ASSOCIATION

Presented by ALLAN M. NELSON, Association Treasurer and  
Metrologist, State of Connecticut

The Northeastern Weights and Measures Associations's 10th Annual Conference was held March 29th through April 1, 1982, at the Hotel Hershey, in Hershey, Pennsylvania. The Conference was hosted by the Pennsylvania Association of Weights and Measures.

Conference Chairman, Sam Valtri, Chief, Philadelphia Bureau of Weights and Measures, and his Committee presented an excellent program, which was both timely and educational, creating much interest from those in attendance.

Highlights of the Conference included a talk, "Balancing Our Act", by Al Tholen, Chief, Office of Weights and Measures, National Bureau of Standards, "Weights and Measures Enforcement - Past & Present", presented by Ed Wolski, "Training, Evaluation, and Certification of Weights and Measures Officials", given by Joe Swanson, and a panel presentation, "Budget Methods and Procedures." NEMAP, Northeastern Measurement Assurance Program, also held two, half-day working sessions in conjunction with the Conference.

The Conference is very fortunate to have an active associate membership. The members from industry have been most co-operative and supportive in all aspects of Conference activity and have played a most important part in the success of the Conference since its inception.

Conference Chairman, Sid Colbrook, of the Illinois Department of Agriculture, has announced that the 11th Annual Conference will be held in Columbus, Ohio, March 14 through 18, 1983, at the Sheraton Columbus Hotel. A most informative program is being planned, with one of the highlights being a tour of Columbus area scale companies. An invitation to National Conference participants is extended and we look forward to your participation in our Conference.

# THE NORTHWEST WEIGHTS AND MEASURES ASSOCIATION

Presented by RICHARD C. SUITER, Association President and  
Administrator of Standards Laboratories, State of Nebraska

The forty-fifth Northwest Conference on Weights and Measures was held on April 14-16 in Des Moines, Iowa, with representatives from all seven Member States in attendance. There were also numerous interested parties from other jurisdictions and private industry for an approximate attendance of 125.

One day was devoted to presentations by Industry Representatives as well as a display of new equipment for both weighing and liquid measurements. Some time was also devoted to discussion of Handbook 44, the new Scale Tolerance Code, Packers and Stockyards Programs, Federal Inspection of Grain, and National Training and Certification for Weights and Measures Officials. These sessions were very informative.

At the meeting held here all Member States were represented. Two resolutions were presented and adopted: (1) a resolution to commend Jim O'Connor and Bob Hollis and Iowa Weights and Measures Staff for an excellent conference in Des Moines and (2) a resolution to request the National Conference on Weights and Measures to prepare at its Interim Meeting at least three Conference Structure Proposals for consideration at the 68th Annual Meeting in 1983.

The Interim Meeting of the Northwest Conference is to be held October 13 and 14th, 1982, in Fargo, North Dakota. The 46th Annual Meeting is to be held April 5 through 7, 1983, at the Marriot Motel in Omaha, Nebraska.

SOUTHERN WEIGHTS AND MEASURES ASSOCIATION

Presented by STAN J. DARSEY, Association President and  
Chief, Bureau of Weights and Measures,  
Tallahassee, Florida

The Southern Weights and Measures Association will meet October 17-21, 1982 at the Round Holiday Inn downtown, 316 West Tennessee Street, Tallahassee, FL 32301. We are planning an informative program with a Sunday night reception and a Wednesday afternoon outing. We invite all of the NCWM members to attend. We need the input of all Weights & Measures related industry representatives to develop a productive conference.

We usually have good weather in October, so we look forward to having you visit Florida's capital city. The SWMA has met in Florida six times before but never in our capital city.



WESTERN WEIGHTS AND MEASURES ASSOCIATION

Presented by WESLEY R. MOSSBERG, Association President  
and Director, Department of Weights and Measures,  
Los Angeles County, California

The Western Weights & Measures Association officers are:

President: W. R. Mossberg, Los Angeles County  
Vice-President: Edison J. Stephens, State of Utah  
Secty-Treas: John Lewis, State of Washington (Retired)

The 24th Western Weights & Measures Association Conference was held last year in Helena, Montana. Some of the issues acted on are as follows:

1. Voting procedure - returning to Roberts Rules of Order.
2. Change the structure of the Board of Directors to include four local officials, with State representatives.
3. The usefulness of our affiliation with NASDA was discussed.
4. The Ray Rebuffo Award to the outstanding sealer went to Ken Simila of Oregon.
5. The Les Murphy Award to the outstanding industry member went to Ted Mantes of the Mantes Scale Company.
6. A special luncheon was held in honor of Harold E. Wollin, retired Executive Secretary of NCWM. A plaque was presented to him depicting the fourteen western States and signed by all attendees.

The 1982 Conference will be held at the Snow Bird Lodge in Salt Lake City, Utah, the week of September 20, 1982. All persons with an interest in weights and measures are invited to attend and participate.

NATIONAL ASSOCIATION OF STATE DEPARTMENTS OF AGRICULTURE

Presented by JAMES B. GRANT, Executive Secretary, NASDA

During our many years of partnership, State and local weights and measures agencies have attained a highly productive working relationship with the National Bureau of Standards. This successful partnership depends in large part on the ability of the NBS Office of Weights and Measures to continue to provide national coordination and certain basic support services to State and local agencies.

Our Association is therefore extremely concerned about the future of OWM and its ability to perform the high quality technical and training support services that have been very beneficial to State and local agencies. Recent reports by the General Accounting Office and the Congressional Research Service document the recent decline in OWM staff and funding, and criticize the reduced level of weights and measures programs within the National Bureau of Standards.

A Congressional hearing on this topic was conducted last June by the House Subcommittee on Science, Research, and Technology. Our Association provided testimony at that hearing and said that a strong, adequately staffed Office of Weights and Measures is essential to the work of State and local weights and measures agencies. We appreciate the interest of Chairman Walgren and his Subcommittee colleagues in the future of OWM, and look forward to working with the Subcommittee on possible amendments to the NBS Organic Act aimed at strengthening the role of OWM as an important part of the National Bureau of Standards.

Our Association also plans to work with the various budget and appropriations committees to assure adequate funding for OWM training programs that have proven so successful in keeping State and local officials abreast of the most recent testing methods and technologies.

Another item of concern to our Association is the future of the Master Track Scale Program which provides verification of rail track scales in cooperation with State and local certification programs. You may recall that the program was transferred from NBS to the Federal Grain Inspection Service a year ago. We have made considerable progress with FGIS on implementing the program, but we are very much concerned about budget cuts that threaten its continuation.

Let me also take this opportunity to call your attention to the Association's strong support for the grain moisture meter specifications and tolerances developed by the National Task Force on Grain Moisture Measurements. This is a major step in the establishment of nationwide standards, and I urge this Conference to adopt the Task Force report.

## AMERICAN PETROLEUM INSTITUTE

Presented by RICHARD SOUTHERS, Manager  
Operations and Engineering, API

It is my pleasure to once again have the privilege of informing the members of the National Conference on Weights and Measures about some of the American Petroleum Institute's activities that are related to Conference concerns.

The first activity has been brought to your attention before. It is the study on the effects of temperature adjustment in the marketing segment of the petroleum industry. The purpose of the study, which is being done for us by the Radian Corporation, is to provide information that will permit analysis of the effects of temperature adjustment at each transaction point in the marketing chain. Another way to state it is, from refinery to consumer.

Currently some seventeen States have laws or regulations relating to the practice of temperature adjustment. Some require the practice in specific instances while others prevent its use. Generally speaking, these laws or regulations originate with a specific interest group. Due to the lack of generally available information, it has been difficult for industry or regulatory officials to make informed assessments of the total effect these regulations have or may have. The report, which should be available sometime in October, will enable dealers, jobbers, regional independents, or large integrated companies to make an evaluation of the effect that regulating the practice of temperature adjustment may have on their particular operation. Regulatory officials can also make appraisals of the effects upon the marketplace in their area and upon their own activities. Anyone wishing to have a copy of the report can let me know and I will see that they get one as soon as it is available.

The second activity is one that is just getting started. It is a study of metering capabilities at the retail level. The purpose of the study is to determine the capability of existing equipment to perform at lower tolerance levels.

When the present tolerance levels were being proposed for conference adoption, petroleum industry representatives voiced no objection because they "felt" that the reductions proposed presented no real problem. At the same time it was recognized that there was no factual information available that would indicate just what would be a practical limit to tolerance reduction. At some point the expense of maintaining or achieving compliance would exceed any benefits that could accrue to either party in the transaction.

This project is envisioned to include approximately one hundred service stations with appropriate geographical distribution. Calibration tests will be performed on a monthly basis for one year. In addition, laboratory tests will be conducted to investigate other factors such as

temperature effects and higher speeds for computers. We will also be analyzing testing procedures. The total project is estimated to take approximately eighteen months to complete.

With the increase in value of petroleum, it is likely that both buyer and seller will become more concerned with the accuracy of these measuring devices. Through this project, in which we will welcome participation by the Conference, it is hoped that informed decisions can be made if further tolerance reductions are proposed.



INDUSTRY COMMITTEE ON PACKAGING AND LABELING

Presented by ALFRED E. JOHANSON, Vice-Chairman,  
ICPL, and Counsel, Foremost-McKesson, Inc.

The Industry Committee on Packaging and Labeling (ICPL) is an ad hoc group of over 100 representatives of companies and trade associations in the packaged goods industries. One of the principal functions of the committee is to serve as a communications link between the conference and industry. We have just begun to serve a similar role with respect to the international organization of legal metrology (OIML).

ICPL is committed to the proposition that communication between industry and regulatory officials is mutually beneficial. Accordingly, we welcome the opportunities that have been made available for more participation in the affairs of the Conference.

ICPL held its annual meeting on Tuesday. At that meeting we elected new officers who will take office at the end of this Conference. They are: Chairman - Bob Nelson of General Mills; Secretary-Treasurer - Joe Bow of the Single Service Institute; and Vice Chairmen - Lucien Agniel, Ralph Miller, Austin Rhoads, Merrill Thompson, and myself.

## NATIONAL SCALE MEN'S ASSOCIATION

Presented by JAMES A. KING, JR., President NSMA  
and President, J. A. King and Co., Inc.

The National Scale Men's Association is the ONE broad based group that is all encompassing - we do not favor any element. We have strong self-imposed and rigidly enforced limitations. We do not promote the interest of one group over another. We take pride in being that one organization in which ALL of us are welcome. It is where inspectors and weights and measures officials, executives and mechanics, salesmen and engineers, dealers and manufacturers can: meet, work, and learn together. We are an equal opportunity embracer.

We stress that we are not chartered as a trade organization. We have no mechanism, no structure, and no desire to influence pending or proposed legislation. Rather, we serve: our members, our industry, scale users, and the general public. We have made great progress towards becoming a technical society - towards becoming a business-like organization; perhaps, better said, toward becoming a professional-technical society. We are recognized as a "Service" or IRS tax exempt organization. Such a classification loosely parallels the category assigned to the Chamber of Commerce. It is most important to realize and understand that NSMA functions as a VOLUNTARY organization - those who guide and direct NSMA do so voluntarily, without pay, and at their own expense.

Now, I will try to bring you up-to-date on NSMA. As of the end of last month, we had 2076 members in good standing; if 350 delinquents pay up, we could have a possible total of over 2400. So far this year, we have enrolled 153 new members.

We just had a most successful Annual Technical Conference in Dallas in early May. There were 1720 in attendance (that was up 7% from 1981). We had delegates from 45 states, District of Columbia, Puerto Rico, five Canadian provinces, Mexico, and 20 other foreign countries. Eighty-one companies exhibited in 140 booths - an excellent exhibit.

We are developing a series of video-tape training films and will have tapes on several subjects available for free use by divisions or for the industry at the nominal cost of \$50.00 per copy. Topics available are:

1. Electronic Conversion for Mechanical Scales
2. Calibration of Multiple Load Cell Electronic Weighing Device
3. Controls and Setup Procedure for Digital Weight Indicator
4. Setup, Operation, and Calibration of an Electronic Counting Scale

There are more to follow.

Our SALEMEN'S HANDBOOK OF METROLOGY, several years in preparation, was published in 1981. It is an excellent technical manual, and we have received many, many favorable comments. Without a doubt, it is tops for our "best seller" list.

SCALE MANUFACTURERS ASSOCIATION, INC.

Presented by RAYMOND J. LLOYD, Executive Director, SMA

Thank you again, on behalf of the officers, directors, and members of the Scale Manufacturers Association for this opportunity to bring the members of the National Conference on Weights and Measures up-to-date on SMA's activities and programs.

First let me introduce our 1982-1983 officers and directors:

President -- William H. Perry, Cardinal Scale Manufacturing Company  
Vice President -- Peter R. Perino, Transducers, Inc.

Directors, in addition to the officers:

Fred H. Katterheinrich, Hobart Corporation  
George N. Krassner, Streeter-Amet Measurements Systems  
Harry E. Lockery, Hottinger Baldwin Measurements, Inc.  
Arnold A. Toivonen, HCR International  
Robert M. Zweig, John Chattillon & Sons, Inc.

We feel our participation in the Conference continues to benefit both the weights and measures community and the scale industry, as well as the general public. We appreciate the strong spirit of cooperation among the Conference leadership and committees, the Office of Weights and Measures, the Office of Product Standards Policy, and the Office of Domestic and International Standards.

The Liaison Committee's interim report on NCWM-NBS relationships notes SMA's participation in hearings before the U.S. House of Representatives Subcommittee on Science, Research, and Technology. We were pleased to joint with the Conference in contributing to the positive movement toward strengthening the OWM and its support of NCWM. Dr. Ernest Ambler's address to this year's Conference and his recent visits to two scale manufacturing facilities were indications of progress.

SMA is proud of its role in development of the new proposed NBS handbook, Type Evaluation Examinations, Criteria and Test Procedures, which was submitted for adoption at this 67th National Conference. Many of our members have been active in the Weighing Subgroup of the National Type Approval Task Force. Harry Lockery, a member of the SMA Board of Directors, chaired this important effort.

We are continuing our efforts to advise weights and measures officials of progress toward a new tolerance structure in the U.S. Daryl Tonini, SMA technical director, will again make presentations at the regional association meetings this year, as he did last year.

In the area of international standards, members of SMA chair OIML working groups on load cells and electronic weighing. Several SMA representatives attended meetings in Paris this spring on OIML's electronic weighing proposals. Daryl Tonini also is a member of the U.S. Advisory Committee on International Legal Metrology, which advises NBS on U.S. positions.



Our publications program is an active force in communicating technical and general information to appropriate officials. Since last year's NCWM, we have updated the American National Standard on scale safety. We presently are revising two publications endorsed by the Conference -- Design and Installation of Pit Scales for Highway Vehicles and Axle Loads and Construction Standards for Vehicle Scale Pits. We also carry considerable information on weights and measures developments in our newsletter, The Weighlog, which is mailed to W & M officials when appropriate. You also receive copies of our annual membership directory.

The excellent working relationship between SMA and the weights and measures community is reflected by the list of speakers at our 1982 Annual Meeting. The list included Dr. Edward Heffron, chairman of this year's National Conference; Charles Smith of the South Carolina W & M Department; and Albert Tholen, chief of OWM. We anticipate that W & M speakers also will address our members at our 1982 Fall Meeting in Washington.

(NOTE: National headquarters of the Scale Manufacturers Association was moved on September 24, 1982, to 1133 Fifteenth Street, N.W., Washington, D. C. 20005. New phone number is 202-429-9440.)

# STATE REPRESENTATIVES

The following is a list of designated State representatives who were present and voting on the reports presented by the Conference standing and annual committees:

<u>State</u>	<u>Representative</u>	<u>Alternate</u>
1. Alabama	Don E. Stagg	John B. Rabb
2. Alaska	Joseph Swanson	
3. Arizona	Patricia Fullinwider	Darwin L. Sorensen
4. Arkansas	Sam Hindsman	Bill Sullivan
5. California	Ezio Delfino	Darrell Guensler
6. Colorado	Leo Letey	
7. Connecticut	John Bennett	Allan Nelson
8. Delaware	Eugene Keeley	
9. District of Columbia	No Representative	
10. Florida	Sydney Andrews	Stan Darsey
11. Georgia	Thomas Kirby	S. S. Abercrombie
12. Hawaii	George Mattimoe	
13. Idaho	Lyman D. Holloway	
14. Indiana	Robert W. Walker	
15. Illinois	Sidney A. Colbrook	Wayne Behrns
16. Iowa	James M. O'Connor	Robert Hollis
17. Kansas	John L. O'Neill	Donald Lynch
18. Kentucky	Charles Prebble	
19. Louisiana	Philip A. Stagg	
20. Maine	Gaylon Kennedy	
21. Maryland	R. Thompson	Lacy H. DeGrange
22. Massachusetts	Charles Carroll	
23. Michigan	Edward Heffron	Frank Nagele
24. Minnesota	Edward Skluzacek	George MacDonald
25. Mississippi	James Spencer	
26. Missouri	J. W. Abbott	
27. Montana	Gary Delano	
28. Navajo Nation	Ray Helmick	
29. Nebraska	John Alloway	
30. Nevada	No Representative	
31. New Hampshire	No Representative	
32. New Jersey	James Bird	Joseph Silvestro
33. New Mexico	Fred Gerk	Richard Schulmeister
34. New York	John Bartfai	Ross Anderson
35. North Carolina	N. David Smith	L. F. Eason
36. North Dakota	Bruce Niebergall	
37. Ohio	Kenneth R. Adcock	Fred Clem
38. Oklahoma	H. H. Latham	
39. Oregon	Ken Simila	
40. Pennsylvania	Fred Thomas	
41. Puerto Rico	Maria Maldonado	Juan Rios
42. Rhode Island	No Representative	
43. South Carolina	Charles Smith	John V. Pugh
44. South Dakota	Barbara Boddicker	
45. Tennessee	Dale Wilkinson	Robert Williams
46. Texas	Charles Forester	Bill Quicksall
47. Utah	Edison Stephens	
48. Vermont	Trafford Brink	
49. Virginia	James Lyles	Robert Shelton
50. Washington	William Sullivan	Gil Allen
51. West Virginia	Kenneth Butcher	
52. Wisconsin	Robert Probst	
53. Wyoming	No Representative	
54. Virgin Islands	No Representative	

REPORT OF THE  
COMMITTEE ON NATIONAL MEASUREMENT POLICY  
AND COORDINATION

Presented by EDWARD C. HEFFRON, Chief,  
Food and Dairy Division, Michigan Department  
of Agriculture, Lansing, Michigan

VOTING KEY

100

INTRODUCTION

The Committee on National Measurement Policy and Coordination submits its final report to the 67th National Conference on Weights and Measures. The report represents recommendations of the committee that have been formed on the basis of written and oral presentations made during the general meeting of the committee.

The Voting Item is:

101 - Task Force on National Type Approval

Information Items are:

102 - Task Force on Package Control

103 - National Weights and Measures System

104 - Report on the United States Metric Board

105 - Position Statement - The Metrication of the United States of America

106 - Report on the International Organization of Legal Metrology

101

TASK FORCE ON NATIONAL TYPE APPROVAL

The Task Force on National Type Approval and its several working groups met throughout the year and have made considerable progress toward their objectives.

A. Policy Working Group

The efforts of the Policy Working Group were explained by Chairman George Mattimoe. The overall goal of the Working Group is to develop a concept for a National Type Approval Program that would be acceptable to the States, industry, and the National Bureau of Standards. The Working Group documented certain background assumptions and objectives.

Background.

1. The enforcement authority for most weights and measures functions rests with the individual States. Each State has the authority and is mandated to test devices to determine compliance with device design and performance criteria. A manufacturer wishing to install devices across the country must comply with all the

requirements of each State. Twelve States have laws or regulations requiring that a device be submitted for examination before it can be installed in their State. This results in considerable expense and marketing delays to a device manufacturer. The remaining States either (a) turn to another agency, typically NBS, to determine if a device has been examined and complies with requirements, or (b) conduct more extensive field inspections and examinations on a new device when it is first encountered in the field. This results in varying opinions on whether or not a device complies with requirements and leads to nonuniform enforcement practices regarding the device.

2. A State is normally not in a good position to evaluate a device for nationwide application. The NBS by virtue of its role as a technical advisor to the States, as a clearinghouse for enforcement problems, and as participant in the review and development of international standards, has the exposure, knowledge, and experience with which to best evaluate a device.
3. The nonuniformity in enforcement across the country causes conflicts between manufacturers and enforcement officials. The OWM is called upon to try to resolve these conflicts and is viewed as the most authoritative voice on weights and measures issues.
4. Uniform test procedures and criteria acceptable to all parties are essential to successfully conducting an examination program. Handbook 44 is written in general terms to apply to a wide range of devices and, consequently, interpretations are necessary. Uniformity of test procedures, criteria, and interpretations can be achieved most easily if only one agency is involved. Attempting to maintain uniformity among several agencies would require a considerable amount of resources.
5. Manufacturers want a single examination to satisfy the approval requirements for the entire country. This would minimize cost and facilitate production and marketing. The States are more likely to accept a device approval issued by NBS than a report issued by a single State.
6. OIML is considering the establishment of an OIML mark that would permit a device to undergo a type approval examination in one country and then be accepted by all countries. If this should develop, U.S. manufacturers would like the United States to have ready a program to conduct type approval that would eliminate possible political or economic considerations from affecting a type approval examination on their equipment. Because of the complexity of the type approval examinations conducted in European countries, it is believed that only a type approval program conducted by the NBS would be acceptable to European countries.



7. The prototype examination program has several benefits to the NBS. In the effort to promote uniformity in weights and measures enforcement, and in serving as a technical advisor to the States and the National Conference on Weights and Measures, the Office of Weights and Measures must be knowledgeable in the operation of devices, understand the technology being used, and be aware of the latest developments in the commercial measurement system. The NBS gains this knowledge by conducting the examination program. This knowledge and the program itself are necessary to develop and resolve technical issues for Handbook 44; lead to the development of test procedures, type approval criteria, and written training material; and aid manufacturers to implement new concepts in the measuring process by facilitating acceptance of the device by the States.

#### Objectives.

1. Assure that devices used in commerce comply with weights and measures enforcement requirements;
2. Assure the enforcement officials that devices used in commerce comply with design, performance, and operation requirements, freeing the officials to concentrate their resources on testing for compliance with performance criteria that are affected by the installation, maintenance, and use of devices;
3. Aid manufacturers of devices by eliminating the need to submit a device to many agencies for examinations, hence reducing costs and marketing delays, and facilitating interstate marketing;
4. Establish uniform criteria, procedures, and interpretations of requirements that eliminate conflicting enforcement practices and that ultimately reduce device cost since a device does not have to be designed or programmed with options to meet conflicting requirements;
5. Aid international marketing by U.S. companies by having U.S. requirements consistent with international requirements where appropriate and by giving the United States a firmer position to influence international requirements;
6. Establish a mechanism that facilitates timely device innovation.

The Working Group approached its task from two points of departure:

1. Establishment of a new not-for-profit organization, "NTAP, Inc." to operate the national program;
2. Evolution of a national program involving existing organizations, but formalizing procedures and roles.

The Working Group presented both concepts to the P & C Committee. After examination of both concepts, plus consideration of written comments from State and industry representatives, the second concept (based on an evolutionary process) was accepted as the preferred approach.

The recommended concept follows:

A NATIONAL TYPE APPROVAL PROGRAM\*  
(NTAP)

PROGRAM GOAL:

To:

1. establish a National Type Approval Program (NTAP) that will lead to uniformity of design, engineering, and operational examination and testing of new commercial weighing and measuring devices among the various Federal and State jurisdictions domestically, and
2. provide the technical and administrative basis for acceptance of NTAP's certificate of approval by the 50 States and OIML member countries.

PROGRAM SCOPE:

The National Type Approval Program (NTAP) for commercial weighing and measuring devices and field test standards is a program for identifying, through uniform examination and testing procedures, those specific devices and equipment (by manufacturer and model) that meet national legal metrology standards.

National legal metrology standards include applicable specifications, tolerances, and other design, engineering, technical, procedural, and administrative requirements for commercial weighing and measuring devices and field test

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\*This concept is based on and is an expansion of "A National Type Approval Program (NTAP) for Weighing and Measuring Devices (Draft Plan)" developed by the NCWM Task Force on Type Approval following the 62nd Annual Meeting of the NCWM. Following the adoption of this plan (including related changes in the NCWM By-laws and procedures) by the NCWM, the Task Force for Type Approval will be abolished; its Policy Working Group will be reconstituted as the NTAP Advisory Committee; its Technical Working Groups will be reassigned as subcommittees of the NCWM Specifications and Tolerances (S&T) Committee.

standards as published in NBS Handbooks or in handbooks, guidelines, or other references established by the NTAP and adopted by the National Conference on Weights and Measures (NCWM).

The NTAP is designed to recognize the roles of existing organizations and does not require the establishment of any new organization. The NTAP formalizes the roles and inter-relationships of these existing organizations. Participation in the NTAP by device manufacturers is voluntary.

#### ORGANIZATIONAL STRUCTURE:

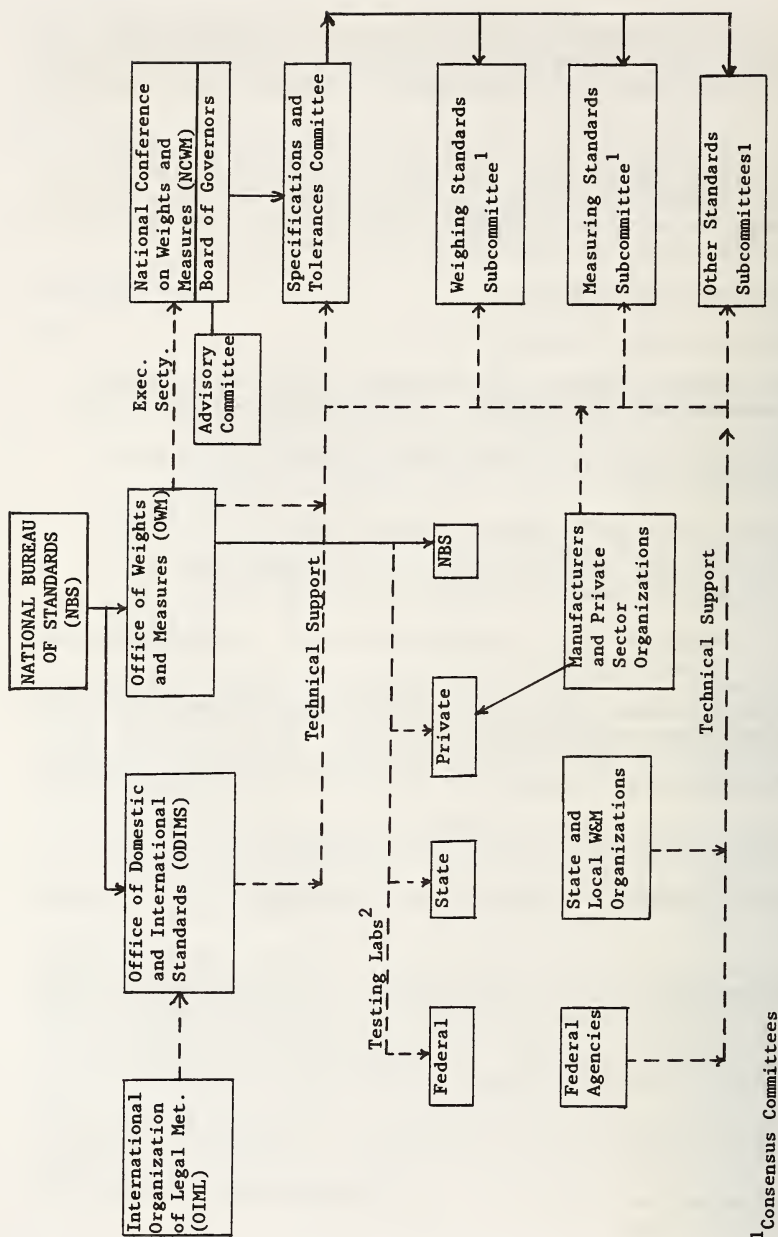
The NTAP is a close association of:

1. The National Bureau of Standards, Office of Weights and Measures (NBS, OWM), and NBS technical Divisions;
2. The State and local government weights and measures organizations;
3. Other associated Federal organizations including
  - a. Packers and Stockyards, U. S. Department of Agriculture
  - b. Federal Grain Inspection Service, U. S. Department of Agriculture;
4. Device manufacturers and other private sector interested parties or organizations; and
5. The National Conference on Weights and Measures (NCWM).

The primary organizational relationships are depicted in Figure 1.

NBS/OWM will provide technical and administrative assistance for:

1. Coordinating with other existing organizations such as Scale Manufacturers Association, Gas Pump Manufacturers Association, American Petroleum Institute, Meter Manufacturers Technical Center, American Society for Testing and Materials, National LP Gas Association, American National Standards Institute, etc.
2. Initial training of staff and/or auditing of testing laboratories.
3. Managing the program and conducting certain device examinations.



<sup>1</sup>Consensus Committees

<sup>2</sup>Meeting established staff, facility, and procedural requirements

Figure 1 - ORGANIZATIONAL RELATIONSHIPS



#### BOARD OF GOVERNORS:

The activities, policies, and procedures of the NTAP will be governed and directed by the NCWM Policy and Coordination Committee sitting as a Board of Governors of NTAP. Operational management of the NTAP will be under the supervision of the Executive Secretary of the NCWM.

#### NTAP ADVISORY COMMITTEE:

The NTAP Advisory Committee (AC) to the NTAP Board of Governors shall represent the interests of device and equipment manufacturers, marketers, and users in each sector of the weighing and measuring device fields as classified by the individual device codes of NBS Handbook 44 (and other applicable handbooks). The Board of Governors is empowered, however, to designate individual device code combinations to be represented by a "combined-code" member seat. The AC Chairperson will sit as a member of the NCWM P&C Committee only when that body is dealing with NTAP business.

#### NTAP OPERATION:

##### Participating Laboratories

Type approval examination of devices under the NTAP is the responsibility of participating laboratories. To become a participating laboratory, an applicant must provide the necessary facilities, test equipment, standards, and personnel to conduct type tests. Requirements are those adopted by the NCWM. Members of the NTAP Advisory Committee (excluding any who are representing or connected to the laboratory under consideration) will serve as a review and evaluation committee for accreditation of participating laboratories.

Ongoing audit of participating laboratories will be conducted by the staff of the NBS/OWM. Audit reports will be made to the NCWM Board of Governors which will authorize the issuance of a laboratory certificate as appropriate based upon positive audit reports and adequacy of testing demand. Participating laboratories must use the NTAP test protocols (checklists and procedures) developed by the appropriate subcommittees of the NCWM S&T Committee and adopted by the NCWM.

#### SUBMISSION OF DEVICES TO NTAP:

Device manufacturers, assemblers, or distributors seeking an NTAP Certificate of Approval for any model or design of weighing or measuring device may contact the nearest Participating Laboratory certified to test that type of device. The



performing laboratory will notify the NBS/OWM (by telephone and confirmed by letter) of the request including identification of the device by manufacturer, name and type of device, model designation, and copy of the written application.

Upon completion of the examination, the participating laboratory will submit a Report of Test to NBS. Assuming the device met all examination requirements, results will be reviewed by the NBS/OWM. If that review confirms examination results, an NBS Certificate will be issued. The Certificate will be sent to the applicant and copies sent to all State and Federal weights and measures agencies. An annual listing of all Certificates issued will be provided by the NBS/OWM and published as part of the Annual NCWM Proceedings.

#### FINANCING:

Participating laboratories will establish fees for examinations based on type, capacity, and other relevant factors (such as State regulations or corporate fiscal structure). Proposed fee schedules must be submitted as a part of the application for Certification by the NBS and reasonableness of that fee structure will be a factor in the decision regarding laboratory certification. The testing laboratory will bill the device manufacturer (or requestor) directly and the payment for the examination will be paid directly to the participating laboratory.

The billing for examinations will include a nominal "surcharge" to be used by NBS to fund expenses associated with administration and management of the NTAP. Such expenses will include review of reports, preparation of certificates, mailing, and other such costs incurred. Participating laboratories will submit surcharge monies collected by them to the NBS on a quarterly basis.

#### ACTIONS REQUIRED:

1. Conduct a meeting (under sponsorship of NCWM) of all interested parties to develop "final" NTAP plan
2. Make a survey of potential participating laboratories
3. Revise NCWM By-laws to provide for its participation in the NTAP Program
4. Develop laboratory certification criteria
5. Continue development of device and equipment examination criteria

6. Adoption of (4) and (5) by the NCWM
7. State action to legally
  - a. accept and require NBS Certificates of Approval and
  - b. operate a participating laboratory and employ a fee basis for operation (if qualified)

ACTIONS FOR CONSIDERATION:

1. Request Congressional action to mandate NBS/OWM participation in its support of:
  - a. the National Conference on Weights and Measures (NCWM)
  - b. the NTAP as defined in this Plan
2. Invite a Canadian representative as an "observer" to the NTAP Board of Governors.
3. Further develop Plan for:
  - a. "permanance evaluation"
  - b. an appeal process procedure
  - d. the extent of information to be provided in publications of examinations and reports (e.g., test procedures, manufacturers' drawings, etc.)
  - e. the correction of oversights or errors made in device examinations and reports
4. Have Task Force conduct a further study to examine need for bilateral (i.e., Canadian) or multilateral (i.e., OIML) reciprocity.

-END OF CONCEPT-

The P&C Committee requests the approval of the Conference to proceed with the development of a national program based on the concept proposed by the Task Force.

B. Technical Working Group.

This report is provided on behalf of the Technical Working Group Chairman, Harry Lockery.

Weighing Sub-group. The Weighing Sub-Group has had the following meetings during and since the National Conference.

One 1/2 day meeting at NCWM in July.

Two 1/2 day meetings at the Western meeting in Helena, Montana.

Two full days of marathon meetings in Kansas City on October 26 and 27.

#### Status of Work

The sub-group has completed its review of the draft document on Type Approval Criteria and Test Procedures prepared by OWM in concert with California and the Federal Grain Inspection Service.

The existence of this document (Type Approval Criteria and Test Procedures) accelerated our work by at least a year. Our many thanks to OWM (Warnlof and Oppermann), FGIS, and the State of California.

Our review consisted of reviewing all of the comments on the draft document received from outside the sub-group. We also discussed comments on the document made by sub-group members. As a result of all of this discussion, revisions, additions, and deletions were made to the draft document. The SMA staff has kept the draft updated on the word processor at SMA headquarters.

Consensus within the sub-group has been reached on all aspects of the draft document. This has been a beautiful example of the consensus process in action.

The revised draft document has been edited for language and format. Introductory remarks were added including definition of "type", the policy on the use of error weights, and historical background. This work will be completed early in December.

The draft document was submitted to the S&T Committee at the interim meeting including the recommendation to keep the document alive and effective. In submitting the document to the Committee, we highlight important changes made to the document by the sub-group.

There remains work to be added including FGIS check lists related to grain hoppers and some material from packers and stockyards. We understand that none of this material is controversial and most of it is already a matter of regulation. There should be no problem incorporating this into our work. The sub-group will meet shortly after the Interim meeting, probably in Washington, to:

1. Review and act upon S&T comments.
2. Add the few remaining FGIS and P&S inputs.

We will then resubmit the document in final form to the S&T Committee for inclusion in their report to the NCWM. We hope they will recommend adoption by the National Conference this summer.

Given adoption by NCWM, we can move further towards reciprocity on type approval among jurisdictions and agencies. Much of that, of course, will have to come out of the Policy Working Group headed by George Mattimoe.

#### Liquid Measuring Devices Sub-group

This sub-group has completed review and revision of the check lists and test procedures for liquid measuring devices. The results have been submitted to the S&T Committee.

Their work on vehicle tank meters is about 75% complete. A complete draft is nearly completed.

The technical working group efforts are well along and there is still a good chance for having all of the work completed in time for presentation to the National Conference in July.

#### Summary

We could not have come this far without the good start given us by OWM, California, and FGIS in the draft document. There has been a lot of hard work on the part of Weights and Measures and industry members of the Weighing Sub-Group who contributed most objectively.

Respectively submitted:

- A. Lockery, Hottinger Baldwin, Chairman
- J. Bartfai, New York
- E. Delfino, California, Chairman, Task Force
- G. Mattimoe, Hawaii, Chairman, Policy Working Group
- C. Parent, Gilbarco
- T. Stabler, Toledo Scale
- E. Stadolnik, Massachusettes

#### Public Members

- R. Anderson, New York
- L. DeGrange, Maryland
- D. Mahoney, Federal Grain Inspection Service, USDA
- F. Nagele, Michigan
- C. Oakley, Packers and Stockyards, USDA
- H. Oppermann, National Bureau of Standards
- C. Smith, California
- O. Warnlof, National Bureau of Standards

#### Weighing Industry Sector

- H. Lockery, Hottinger Baldwin, Chairman
- A. Goldberg, Howe-Richardson
- W. Goodpaster, Cardinal Scale
- R. Hurley, Fairbanks
- F. Katterheinrich, Hobart
- J. Robinson, Association of American Railroads
- T. Stabler, Toledo Scale
- D. Tonini, Scale Manufacturers Association



Measuring Industry Sector

W. Gerdorn, Tokheim, Chairman  
M. Belue, Southwest Pump  
W. Dubsky, Dresser Wayne  
A. Evans, Veeder-Root  
R. Fonger, Bennett Pump  
W. Keay, Tokheim  
A. Kroll, Gilbarco  
W. Reitz, Liquid Controls

TASK FORCE ON TYPE APPROVAL

(Item 101 was adopted)

102

TASK FORCE ON PACKAGE CONTROL

This task force is a subgroup of the NCWM special study group on a national weights and measures system for the U.S.

During the Interim Committee Meetings for the 67th National Conference held in January, 1982, at Gaithersburg, the Task Force members present met on two occasions to review work in progress and discuss plans for the future.

Following the 1981 National Conference in St. Louis, the Task Force initiated activity on three of the recommendations of its predecessor body, the NCWM Special Study Group on Enforcement Uniformity. The recommendations of that body are incorporated under Item 101 in the Report of the Policy and Coordination Committee to the 66th NCWM in July, 1981.

ACTIVITY I - DEVELOPMENT OF A SHORT EASY-TO-FOLLOW POCKET FIELD  
MANUAL OF PACKAGE SAMPLING AND NET CONTENT CHECKING  
PROCEDURES

Initial work in this area included the review of the results to date of two concurrent efforts to produce a document of this type. These are 1. The State of California's drafting of a document titled "Sampling and Testing Procedures for Estimating Container Fill of Packaged Commodities", and 2. The National Bureau of Standards draft in process of an abbreviated Handbook 133 "pocket manual".

ACTIVITY II - ASSISTING IN IDENTIFYING: A. - TRAINING NEEDS OF  
WEIGHTS AND MEASURES PERSONNEL INVOLVED IN PACKAGE  
CONTROL WORK, AND B. - TRAINING RESOURCES AVAILABLE  
TO MEET THOSE NEEDS.

Work in this area to date by members of the Task Force has identified some of the training needs for personnel involved in package control to include:



1. Fundamentals (units of measure, reading labels, calculations, rounding, etc.)
2. basic statistics
3. sampling techniques (locating and isolating lots, selecting samples, etc.)
4. tare determination procedures
5. data recording, computation, and interpretation
6. handling and use of official agency field standards and equipment (e.g. "hardware")
7. application of official agency regulatory requirements (e.g. compliance standards or "software").

In addition some work has been done on the identification of training programs on package control which could or will be available to inspectors.

The most significant and complete program identified to date is the one being prepared by C. Brickenkamp and S. Hasko of the National Bureau of Standards, Office of Weights and Measures. The program will consist of seven modules or sessions on video tape and will be presented primarily to State training officials responsible for training the inspectors. The first module has been presented to Delaware, Maryland, New Jersey, North and South Carolina, Pennsylvania, and Virginia.

Some elements of training in package control have been identified as being under development or to some extent available already. These include:

1. plans by Texas A & M University to develop one or two training modules on statistical sampling and Handbook 133, if their program is authorized and funded;
2. basic material on statistical sampling and package inspection techniques available through the Institute for Weights and Measures in their courses 105, Introduction to Package Control, and 202, Package Control;
3. courses in mathematics and statistical sampling offered at the two California junior colleges (Yuba College in northern California, and Golden West College in southern California) which offer Associate of Science (two-year) degree programs in Measurement Science, and also possibly at Alfred College in New York.

#### ACTIVITY III - COMPARISON AND EVALUATION OF PACKAGE NET CONTENT REGULATORY SYSTEMS INTERNATIONALLY

The Task Force on Package Control heard a report on progress in a study comparing the regulatory systems in place of eight countries, and the European Economic Community and on work in progress in two international standards setting bodies on the subject of regulation of

the net quantity of contents of prepackaged commodities. The International Comparison outline which follows as Appendix A gives details of this phase of the activity complete to date.

Countries reviewed as of this writing were The Netherlands, United Kingdom, Canada, Sweden, New Zealand, Australia, Japan, and Mexico. The EEC point of pack system was reviewed. The status of efforts by the International Organization for Legal Metrology (OIML) and the Codex Alimentarius Commission of the FAO/WHO were also reviewed.

Regulatory systems for prepackages were examined on the following characteristics: 1. architecture of the regulations, 2. place of inspection, 3. definition of net weight, 4. standard for judging compliance, 5. treatment of hygroscopic commodities, 6. definition of tare, and 7. inspection procedures.

Between now and the annual meeting of the National Conference on Weights and Measure the following work is contemplated. A matrix based on the characteristics listed above will be constructed to make comparisons between and among regulatory systems convenient. It is anticipated that several more countries will be included in the review. The Task Force will seek to collect information from industries and weights and measures officials in foreign countries on such issues as the cost effectiveness of programs in place and what has been the experience of weights and measures officials in administering the "e" system in place in the European Economic Community. The Task Force will work with the Office of Product Standards Policy and Mr. David Edgerly to attempt to collect this type of information.

The Task Force hopes to be able to report on further progress in all of these activity areas at the NCWM Conference in Atlanta in July, 1982.

## APPENDIX A

### INTERNATIONAL COMPARISON NET WEIGHT/PACKAGING LAWS

#### I. European Economic Community

##### A. Architecture of regulations

1. Council Directive. On January 20, 1976 The Council of the European Communities adopted a Directive relating to the making-up of pre-packaged products (76/211/EEC). The Directive has the purpose of unburdening trade between Member States, informing consumers, and specifying tolerable negative errors for prepackages. The Directive was designed to take effect over an 18-month period so that national legislation and organization could be adjusted to the new rules.
2. Implementing Regulations. The Directive is implemented by each Member country, which must adopt laws, regulations, and/or administrative provisions needed to comply with the Directive, as to goods traded between the Member countries. At the same time, the Member Countries may regulate in whatever fashion they chose, the prepackaging of goods prepackaged and sold within their own borders.
3. Member Laws.
  - a. Netherlands.
    1. System is optional for packers--those who do not wish to apply the EEC directives may proceed under the prior rules. In the Netherlands, the pre-existing principle was for minimum weights with packers overfilling by 3 times the standard deviation. However, even with minimum requirements, the Dutch allowed reasonable percentages for commodities that dried out.
    2. New regulations provide for inspection in the packer's facility, together with the obligation to keep records of inspections. State officials are empowered to make unannounced inspections. The Dutch approve a packer's inspection procedures based on review of the methods and frequency of inspections, the number and selection of samples, and the statistical calculations of results. All equipment used for testing by the packer must be officially calibrated and declared suitable for the job. The packer cannot change his internal net weight inspection procedures without the prior consent of the Service of Weights and Measures.

b. Great Britain.

1. On April 4, 1979 the Weights and Measures Act 1979 was adopted, to take effect at several times during the subsequent 10 months. The Act set forth the new system of quantity control for packaging goods (referred to as the "average" system) in order to comply with the Council Directive. The Act is reported at Vol. 49 Weights and Measures at Page 1541.

2. The corresponding regulations [S.I. 1979 No. 1613] are not applicable to several types of commodities, for example, (1) "catchweight packages", that is, what we call random packages; (2) packages in quantities less than 5 g or 5 ml; and (3) packages not marked with the EEC mark where either the goods are to be processed further or the goods are intended for export. Packages are to be checked by the packer or importer prior to their leaving the plant and the Government assesses fees for checking and certifying equipment.

B. Place of Inspection. The Council Directive does not specify the place of inspection. However, it does specify in Article 5 that no Member State may prohibit the marketing of prepackages that satisfy the requirements of the Directive. The Directive does indicate that a packer may add to the net weight statement an "e" showing that his production is subject to the inspection procedures specified in the Directive. This can take place only at the plant. Therefore, the effective point of inspection must be the plant.

1. Plant. The regulations of the Netherlands specifically, and the regulations of Great Britain by implication, provide that inspection of EEC Member commodities must be at the plant.

2. Warehouse. No specific mention.

3. Place of Importation. Both sets of regulations mention inspection at the point of importation.

4. Retail/Commercial Establishments. Both sets of regulations allow inspection at retail and commercial establishments for commodities not marked with the EEC mark.



- C. Definition of Net Weight. The Council Directive uses the term "nominal weight", which is the weight indicated on the package. The concept is contrasted to the "actual contents" which is defined as the "quantity of product which [the package] in fact contains."
- D. Standards for Judging Compliance.
1. The EEC Directive does not require minimum weight to be labeled in prepackages.
  2. The EEC Council Directive requires that (a) "the actual contents shall not be less, on average, than the nominal quantity." In addition, no package can have a negative error greater than twice the tolerable negative error given in the Directive (the ranges are from 4.5 percent to 1.5 percent). Further, the number of packages that may have a negative error greater than that listed in the Directive is limited on the basis of the size of the sample, the size of the lot, and the repetition of the sampling. The lowest number that can justify rejection of a lot on this criterion is 2, where destructive testing must be done, while the highest number is 9, where the lot consists of 3,201 items or more and the total sample includes 160 items.
- E. Treatment of hygroscopic commodities.
1. Allowable Variations. No such variations specified or referred to in the Council Directive.
  2. When Packed. The language "when packed" is not specifically mentioned, but to the extent that the "e" certifies full weight at the time of pack, it serves the same purpose.
  3. Inspection Only at Plant. The Council Directive does not specifically set allowances from nominal weight for commodities that are affected by climatic conditions. However, since inspection and marking of the package with the EEC mark is done at the plant, the "problem" of moisture loss or gain during distribution is avoided.
    - a. The British regulations make special provision for packages of "desiccating goods". An inspector may inspect a group of such packages at any time, but the test "...shall not be carried out in any case where the packer of the packages or, as the case may be, the importer of them has taken reasonable steps to ensure that the inspector who proposes to carry out the test knows or can readily ascertain -



- (a) ... that the packages in question were made up or, as the case may be, were imported more than 7 days before the beginning of the day on which he proposes to carry it out; and
- (b) ... that the packages were made up more than twenty-four hours before the beginning of the day on which he proposes to carry it out." [SI 1979 Np. 1613, 27 (4)]

4. Overpacking Required. Not required except to the extent of meeting variations that might arise from packaging variations due to machinery problems.

F. Tare Definition. The Council Directive does not mention tare. The subsequent technical amendments of the annexes to the directives, issued as a Commission Directive, states that "The procedure for measuring the actual contents of a prepackage may be the subject of domestic regulations in each Member State." Neither the British statute nor the British Regulations define tare. However, the definition may be contained in the section of the regulations that set out the procedure for testing packages. This section is not published here.

G. Inspection Procedures.

1. The Council Directive specifies detailed procedures for sampling and testing compliance. However, the Directive requires only that the effect of the procedure used "be comparable" to the reference method. Commission Directive 78/891/EEC provides a measure of comparability for use by Member States in terms of percentage deviations of the abscissa of the ordinate point from the reference standard.

Checking is carried out by sampling in two steps which provide data on (1) the actual contents of each package in the sample, and (2) the average of the actual contents of the packages in the sample. Sampling plans may be nondestructive or destructive. Destructive testing, as a general rule, should not be used for batches (lots) of less than 100, since the testing if carried out must be 100%.

Batches are defined as maximum hourly output of the packing line or 10,000. Selection of the sample must be random.

The check on the average actual contents requires calculation of the standard deviation. Acceptance

criteria for the average are based upon sample and lot size.

2. The Dutch regulations provide guidance on when destructive testing must be carried out; if the dispersion of tare weights of the empty-packages is too great, then destructive testing must be used. Even in non-destructive testing, at least 10 packages must be opened, since these 10 tares are necessary to determine dispersion.

The Dutch have adopted acceptance/rejection criteria representing the Student's t-test with a 0.995 confidence level.

## II. Canada

### A. Architecture of Regulation

1. Requirements for packaging and labelling are set out in national law. The Consumer Packaging and Labelling Act approved on June 10, 1971 prohibits the sale or importation into Canada of any prepackaged product that does not bear a label showing the net weight or net contents. It provides for inspection and, if appropriate, seizures. In addition, The Act provides for standardization of containers.
  2. The Act authorizes the Governor to make regulations that (a) exempt products, (b) exempt types of transactions, (c) define "principal display panel", (d) list expressions that would constitute false or misleading representations, (e) set tolerances for net weight statements; etc. However, new regulations were issued during the week of December 31, 1981 and are not yet available in this country.
2. No information is available on the powers of the Provinces to adopt rules and regulations for net weight compliance checking.

- B. Place of Inspection. The statute does not limit the place or time at which an inspector may inspect prepackaged products.
- C. Definition of Net Weight. The statute does not define net weight.
- D. Standard for Judging Compliance. The statute permits deviations from stated net weight in accordance with tolerances that are set by regulations.

E. Treatment of Hygroscopic Commodities. There is no specific statutory reference to moisture loss or hygroscopic commodities. The law provides for tolerances, but at this time we do not have information about the size of specific tolerances.

F. Tare Definition. The Statute does not define "tare". However, it does define "container" as follows:

(c) "container" means a receptacle, package, wrapper, or confining band in which a product is offered for sale but does not include package liners or shipping containers or any outer wrapping or box that is customarily displayed to the consumer," Section 2(c).

As indicated above, the regulations have just been revised and are not yet available.

G. Inspection Procedures. Although the prescription of inspection procedures is not specifically deemed to be a matter for including in regulations, there is no specification in the statute and therefore the procedures are probably outlined in the new regulations.

### III. New Zealand

A. Architecture of Regulation. Weights and measures issues are the subject of national law and national regulation. The basic act is the Weights and Measures Act 1925 which has been amended several times, particularly for the adoption of metric measurement and package sizes. The citation of the act is 16 New Zealand Statutes Reprint 1908-1957, pp. 631-656. The regulations are contained in New Zealand S.R. (Statutory Regulations) 1972/186/2.

The law requires that goods sold at retail be sold by net weight or measure and that goods sold at retail in packages be marked with the net weight or measure.

B. Place of Inspection. The Act is administered by the Department of Labor. No specific restriction is placed on inspection powers.

C. Definition of Net Weight. None

D. Standard for Judging Compliance. None

E. Treatment of Hygroscopic Commodities.

1. Allowable Variations. No mention.

2. When Packed. Section 18 (4a) of the Act provides that hygroscopic commodities be labeled with a "when packed" statement. The specific language reads as follows:

"This section shall not apply to any goods exposed for sale or sold by weight in a package if -

(a) the weight of the goods is subject to variation by reason of climatic influences; and

(b) the package bears a conspicuous label or inscription showing the words 'Net weight when packed', together with such weight."

3. Inspection Only at Plant. No limit on inspections.

4. Overpacking Required. Under Section 18 (4a), no overpacking to compensate for moisture loss is required.

F. Tare Definition. None

G. Inspection Procedures. None

#### IV. Australia

##### A. Architecture of Regulation.

1. National law. At the national level, Australia does not regulate packaging and labeling except for imports and exports by means of the Commerce (Trade Descriptions) Act 1905-1973. According to this law, no one may import or export packaged goods unless they contain a trade description of the "nature, number, quantity... or weight of the goods...", 2 Acts of the Parliament 1901-1973, pp. 779-784, Section 3(a).

However, on a related matter -- the identity and value of standards of measure, the national Government does provide for uniformity under the Weights and Measure (National Standards) Act 1960-1973.

2. Implementing regulations. Rules for packaging and labeling are adopted by each State. These State laws are not available at this time. In connection with weights and measures, the national law does not preempt State law unless that law is "...inconsistent with an express provision of this Act or of the regulations..." Section (4)2, p. 488, 12 Acts of the Parliament 1901-1973.

3. Copies of State law and regulation are not available.

B. Place of Inspection. None

C. Definition of Net Weight. None



- D. Standard for Judging Compliance. None
- E. Treatment of Hygroscopic Commodities. None
- F. Tare Definition. None
- G. Inspection Procedures. None

V. Japan.

This country does not allow the importation of most food and agricultural commodities. However, informal advice from companies doing business in Japan indicates that inspections are conducted at the point of sale.

VI. Mexico.

Informal advice from companies doing business in Mexico indicates that inspections are conducted at the point of sale.

VII. International Organization of Legal Metrology (OIML)

- A. Architecture of Regulation. This organization is an international body that promulgates standards for consideration of member countries.
- B. Place of Inspection. The draft now being circulated for comment and consideration assumes that inspection may be carried on at any point in distribution.
- C. Definition of net weight. No definition is given in the draft inspection procedures.
- D. Standard for Judging Compliance. The inspection procedures outlined by the draft contain 3 levels for judging compliance of samples taken from lots of packaged products. With each application of the procedure, the risk of rejecting a lot that is in compliance decreases. The risk in "screening" is approximately 16%; the risk in taking official action short of penal sanctions is approximately 2.5%; and the risk for seeking penal sanctions is 0.04%.
- E. Treatment of Hygroscopic Commodities. The inspection procedures do not make allowances for weight changes after packaging, since the statistical assumptions used in predicting compliance of the lot from the characteristics of the sample are not modified for different types of commodities.
- F. Tare Definition. The draft procedures do not define tare.



- G. Inspection procedures. Lot sizes may range from 100 to 10,000. No specific sample sizes are given. Selection of samples is not required to be random under all circumstances.

VIII. Codex Alimentarius Commission, FAO

A. Architecture of Regulation.

1. General Principles. Codex, too is an international organization. It provides guidelines and standards for the purpose of promoting uniformity among member nations of the United Nations. The currently effective Recommended International General Standard for the Labelling of Prepackaged Foods (CAC/RS 1-1969) provides that prepackaged foods be labelled with (1) the name of the food, (2) a list of ingredients, (3) net contents, (4) name and address of the manufacturer, packer, distributor, importer, exporter, or vendor, and (5) the country of origin.
2. Implementing regulations. The Codex Committee on Methods of Analysis and Sampling is considering recommended regulations for sampling and net weight sampling.
3. Member Country Laws and Regulations. Codex standards must be adopted by a country in accordance with its established legal and administrative procedures. According to the General Principles of the Codex Alimentarius, adoption may be (1) full acceptance, (2) target acceptance in which the country agrees to adopt the standard after a period of years, or (3) acceptance with minor deviations.

- B. Place of Inspection. The Committee is now considering proposals prepared by the Secretariat and is preparing to send out questionnaires to Member countries. The proposed methods would cover consignment of foods moving in international trade. The Committee therefore does not contemplate that its procedures would be applied at the retail level or in the factory.

- C. Definition of Net Weight. No specific definition is given, since the main purpose of the Committee is to develop sampling methods. The current General Standard provides that net contents be declared either by volume or weight, except that foods packed in a liquid medium which is discarded by the consumer must be labeled by drained weight.

- D. Standard for Judging Compliance. Sampling for analysis and sampling for net weight are treated separately. The potential standards for the first type of inspection are

outlined in the Committee's questionnaire as being (1) sampling by variables, with the standard deviation of each variable known; (2) sampling by variables but with no knowledge of standard deviations; and (3) sampling by attributes. No specific numbers on acceptance or rejection are proposed, since the usual statistical assumptions would not be appropriate for all types of sampling.

As to sampling for net weight, the Committee has asked for comments on three standards for judging compliance, notwithstanding the EEC commitment to the average concept. The three possibilities are labelled as (1) the Acceptable Quality Level or High Acceptance Probability, (2) the Indifferent Quality Plan, and (3) the Moderate Acceptance Probability Plan. The probability of acceptance of a lot based upon sampling under the three "plans" is, respectively, 95%, 50%, and 84%.

- E. Treatment of Hygroscopic Commodities. There is no mention of this type of commodity.
- F. Tare Definition. There is no definition in the recommended sampling methods. The General Standard defines container as "...any form of packaging of food for sale as a single item, whether by completely or partially enclosing the food, and includes wrappers;...".
- G. Inspection Procedures. No specific procedures have yet been proposed.

Respectively submitted:

A. Johanson, Foremost McKesson, Inc., Co-Chairman  
K. Simila, State of Oregon, Co-Chairman  
J. Alloway, State of Nebraska  
R. Belliveau, Proctor & Gamble Co.  
C. Kloos, Hunt Wesson Foods, Inc.  
D. Offner, City of St. Louis, Missouri  
N. Peterson, Counsel to General Mills  
D. Stagg, State of Alabama  
TASK FORCE ON PACKAGE CONTROL

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#### NATIONAL WEIGHTS AND MEASURES SYSTEM

The 66th NCWM considered it important to continue a study on what the role of Weights and Measures Administration should be to meet the needs of society. Social, political, economic, and technical changes and advancements must be considered to determine the full scope of such a program.

The final objective of the special study group appointed as a consequence of NCWM acceptance of Item 101 of the Report of the P&C

Committee of the 65th Conference is to develop the means to execute the recommended Metrological Control Plan for the United States. A number of sub-parts must be addressed to facilitate such a Plan. The focus of the special study group during 1981 was largely on a selection of the sub-parts. Concurrently, work progressed through other channels to develop a National Type Approval Program, a pilot peer evaluation program, a national training program, an inspector certification program, and changes in the NBS Organic Act to assist the activities of the Office of Weights and Measures.

The special study group plans to shift its emphasis from a holding condition pending supplementary developments to that of a detailed examination of each element of the Metrological Control Plan (MCP) and to work out the specific feasibility of the complementary activities called for by the participants in such a Plan.

This will call for a reorganization of the special study group and a clear-cut execution of the charter imposed by P&C Item 101 (65th Conference).

Consistent with the considerations of MCP are the following concerns:

The Task Force on package control has continued its efforts and is making a separate report. Weights and Measures enforcement has historically been the prerogative of State government until Federal legislation authorized certain Federal agencies, such as the USDA, FDA, FTC, etc. to regulate certain items, products, and commodities in package form. The proliferation of rules relating to declaration of contents when adopted on an uncoordinated basis by these agencies causes enforcement problems with the States.

Changes in marketing and business practices along with advancements in device and packaging technology all have affected the ability of weights and measures officials to cope with the long-standing commission "To Maintain Equity in the Marketplace".

Congressional hearings on the NBS Organic Act have focused on the steady decline of resources available for support by OWM/NBS to the States and NCWM. NBS management recently announced a reemphasis in weights and measures as a result of their evaluation of the support needs of the States.

The current political climate and management policy at NBS in conjunction with new technology and marketing practices cause this Committee to recommend certain changes, although a total program cannot be formulated at this time.

Recommendations for immediate consideration are:

1. Continue to petition Congress to amend portions of the NBS Organic Act to mandate certain responsibilities to the Director of NBS; to restore the RR Track Scale calibration programs to NBS; and to restructure the existing visiting Committee.

2. Review Federal Statutes to develop a model that would place in one agency all rule-making powers that relate to "declaration of contents on packages". Such rules would be based on actions of the NCWM.

An additional recommendation, to meet current needs, is to revise the Model State Weights and Measures Law to include:

1. Responsibility for the verification and certification of all physical standards of Weights and Measures used by Weights and Measures Officials, other law enforcement agencies, and industry. Such certificates when executed in accordance with State Law would be "prima facie" evidence of authenticity of the calibration of such standards.
2. Provide for the adoption by citation.

Tentative recommendations with regard to the objectives of the study group are categorized as follows:

A. Administration and Enforcement

It is apparent the States need, now more than ever, to draw on OWM/NBS for guidance, technical assistance, and training information and as a repository of knowledge. In this regard, OWM/NBS should be legally mandated to provide this service. This service should include an expanded metrology control program (mass, length, volume, temperature, and pressure); assistance in coordinating and developing programs for regional conferences; publishing of handbooks; reporting on new technology; and re-institution of its former program dealing with case law in weights and measures. OWM should also coordinate State involvement in FPLA, OIML, and metric activities so that the States have only one agency to deal with.

B. Metrology Laboratory Facilities and Programs

Demands on State metrology laboratories are increasing both as to the number of requests and the scope of calibrations. The need for an accurate calibration and certification system for legal, commercial, and industrial standards, traceable to NBS, is paramount and mechanisms must be sought to extend the system from State laboratories to indigenous industry. It is noted that NBS management revealed an intention to increase metrology service to the States. This plan must eventually include additional categories (temperature, pressure, etc.) to meet the increasing demands of industry on State metrology laboratories. The continued publication of standards, specifications, and calibration procedures is a necessary function of NBS to insure the uniform transfer of measurement standards.



C. Device Control and Verification

Further attention must be given to the current report of the Task Force on Type Approval which describes a National Type Approval Program. Focus should be on the current approach used in most jurisdictions to test and inspect every commercial weights and measures device at least once in each year. Cost-benefit evaluations must be developed to determine whether other systems (official testing on a sampling basis or by qualified service agencies) is acceptable.

However, the goal should be uniformity of the test and inspection procedure used in all States. Standard examination procedures and uniform training is the key to this. The continued updating and publication of Examination Procedure Outlines (NBS-112) and appropriate training models and aids provided by OWM/NBS is a basic requirement. Development of a national program of type approval as conceived by the Task Force will result in published examination procedures, related testing equipment, and training manuals.

D. Report by Special Task Force on Package Control

See Item 102

In summation, the study should be continued to coordinate all relevant material and activities not previously available for review and study. The group will continue to develop both short and long term proposals and recommendations but will focus on an integrated national system.

Conference officers are encouraged to schedule presentations before national associations of governors, legislators, county governments, and municipalities because it is imperative that the legal, social, and economic justification for State Weights and Measures programs be brought to their attention.

Respectively submitted:

J. Bird, New Jersey, Chairman

E. Delfino, California

W. Gerdorf, Tokheim

C. Greene, New Mexico

R. Hurley, Fairbanks

G. Johnson, Foremost McKesson

C. Kloos, Hunt Wesson

L. Meyer, COCO

R. Probst, Wisconsin

K. Simila, Oregon

T. Stabler, Toledo Scale

E. Stadolnik, Massachusetts

R. Thompson, Maryland

SPECIAL STUDY GROUP, NATIONAL WEIGHTS AND MEASURES SYSTEM

by

Sydney D. Andrews

NCWM Representative to USMB

I appreciate this opportunity to bring you up-to-date on what has happened to the U. S. Metric Board since my report at the Interim Meetings which was published in the announcement booklet and which appears following this update. There is really little new to add, except that it is now pretty certain the Board will be terminated on September 30, 1982.

Last week in Washington we held what probably will be our final meeting. Of the seventeen positions authorized under the Metric Conversion Act of 1975 only nine remain filled. For more than two years, as terms of members expired there have been no new appointments. We had reports from representatives of the American National Metric Council, the Metric Operating Committee of the Interagency Committee on Metric Policy, the National Council on State Metrication, and the Office of Productivity, Technology, and Innovation in the Department of Commerce. They each presented their plans for future operations in the absence of the U.S. Metric Board. We also received from the Government Printing Office the "U.S. Metric Board Summary Report - July 1982". A copy of this final report is available at the registration desk for each State Director of Weights and Measures. Anyone else wishing copies should request it from: U.S. Metric Board, Suite 400, 1600 Wilson Boulevard, Arlington, Virginia 22209.

Certain responsibilities set forth in the Act will remain in force until the Act is repealed, or amended. It now appears that these responsibilities will be assumed by the Office of Productivity, Technology, and Innovation in the Department of Commerce. The approval for \$300,000 and seven positions to carry out these responsibilities appears fairly certain. Also, after recent consultations with those in charge of this office I am optimistic that they will continue sponsoring the Interagency Committee on Metric Policy and its Metric Operating Committee, as well as the National Council on State Metrication. These organizations, which were sponsored by the U.S. Metric Board, are already in place and functioning. As coordinating bodies they can be very valuable to the future of voluntary metrication in this country.

With the demise of the Metric Board virtually certain now, I would like to reiterate my previous plea that the National Conference on Weights and Measures join with other organizations that share the feeling that metrication is in the best interest of our country, and work for its ultimate adoption. Also, I urge you to pass an amended version of the resolution proposed as Item 105 of the Interim Meeting Report of the Committee on National Measurement Policy and Coordination which appeared in the announcement booklet. This will reaffirm the Conference's support for metrication at a time when I feel it is much needed.

This is probably my last report to you as your representative to the U.S. Metric Board. I wish it could be more up-beat. Although some good was accomplished, I have been disappointed that the Board was not able to do more to help the cause of metrication. I have at times been frustrated by my inability to influence decisions of the Board to take more positive actions regarding metrication. However, at all times I have been very proud to be your representative, and I will be forever grateful to the members of the National Conference on Weights and Measures for giving me this opportunity to serve you.

#### REPORT ON THE UNITED STATES METRIC BOARD

By far the most important news about the U.S. Metric Board is that in all probability it will be eliminated by the process of just not funding it at the end of the fiscal year 1982. The House appropriated 2.7 million dollars to carry the Board through the fiscal year 1982 and, although we were not happy with it, we at least felt we could make some progress with that kind of money. However, the Senate Subcommittee on Appropriations met and decided they would reduce our budget to 1.5 million with a termination date of March 30, 1982. This meant they were allowing just enough money to give the Board a decent burial. We made contact with some members of Congress and were able to persuade the powers that be to allow the Board to continue until the end of the fiscal year, which is September 30. It now appears we will be funded by what the Congress calls a continuing resolution which means we will operate at a spending level of approximately 2 million dollars for the rest of the fiscal year. It is very doubtful that the Board will be funded beyond that.

My personal feelings are somewhat mixed on this and I have tried to contact representative samples of the constituency I represent; I find they share the same feeling - quite doubtful about continuing the U.S. Metric Board. Those of us who were definitely pro metric, and anxious to see the Metric Study implemented through Congressional action, have been disappointed not only in the Act itself, but in the actions of the Board. Rather early in its history the Board adopted a resolution that virtually neutralized us as far as taking any positive action for metrication was concerned; the resolution has caused problems. As is the case with any Federal agency starting from scratch, the first year we suffered from organizational problems. The second year we spent too much time bickering over procedural matters, and not getting a whole lot accomplished. Then, the "San Francisco Resolution" came along which virtually neutralized us. By the third year our staff was fairly organized and I was pleased with some of the work they were doing; but the Board itself did not seem to get together much on what our real purpose was. Last July when I appeared before the Conference, it was only about a week after the Charlotte Board meeting. I reported that for the first time since I had been on the Board I saw some evidence of real progress. Some positive things had come out of that meeting indicating that action would be taken toward some fine programs. I was quite encouraged and I am happy to say that since that time some of these things have come to fruition.



We have engaged in several research projects. Some of them have been completed and reports have been made. I would like to encourage any of you who have an interest in this sort of thing to write the Board and tell them that you would like copies of the research reports, or any other information that they might have put together as a result of some of our studies. Among other things, we revised the very popular document which came out of the National Bureau of Standards when they housed the Office of Metric Information. It was called "All About Metric". We have updated it and the new version is a very fine document that can be used by school children, or lecture groups, or most anyone. We authorized a study of the conversion of wine and distilled spirits containers. That study has been used by us to try to discover what mistakes were made, and what should be avoided in future conversion processes. I think it will serve a useful purpose for any industry that is contemplating such a move. I sincerely hope that they will call on the Board, or at least use that study if the Board is not in existence, to try to avoid some of the mistakes that were made and also, perhaps avoid some of the problems that the wine and distilled spirits industry encountered in their consumer relations during that conversion.

We engaged in a rather extensive consumer program study and had a fine report. Much of the information that was surfaced by that report has been adopted by the Board, at least as a matter of policy. Some suggestions have been implemented but, unfortunately, the full time consumer specialist that we agreed should be hired by the Board was never employed simply because we just did not have the funds. I hope the general public will not perceive that as a lack of concern for consumer interest because I believe I can safely say that one of the few things the Board has agreed upon is that we must address the needs, and the interest, of the consumers in any metrication program by bringing them into the planning and discussions at an early stage.

The small business cost benefit study I think was a fine piece of work and it revealed that small businesses that had been called on to supply metric equipment, or metric goods, to some of the large industries had not experienced the great problems that were predicted for them. They had made no great investment in metric conversion, or metric tools, but had been able to handle these changes more or less in the same manner they would any request from their customers such as a change in design, or a change in the type of metal that was being used in a particular product. The study indicated that it was handled as any other business change would be handled, and did not reveal drastic changes and drastic costs being encountered by small business.

One of the programs that the U.S. Metric Board voted to take part in, and do whatever we could to capitalize on, was the 1984 Olympic Games. As you know, practically all of the track and field events in Olympic Games are actually carried on in metric dimensions. One of the things that annoyed many of us who were pro metric was that the networks handling the 1980 Games constantly converted the results of events even though they were actually being performed in metric dimensions.



We were in hopes that maybe we could persuade them to report them just as they were being conducted. This could actually have been a great education, and awareness tool. Obviously, that program will have to be abandoned now as will some of the other good things we planned.

We did some very clever, as well as effective, TV commercials during the period when we were making the conversion to the gasoline dispensers. Others had been scheduled but, reluctantly, we will have to discontinue that program for lack of funds. One of the other sacrifices we will have to make due to lack of funds is to give up our open forums and moving the meetings around the country so that we can raise metric awareness. All future meetings are scheduled in Washington from now on trying to conserve funds, but one of the great losses I think will be that we will have no more public forums. We do plan to have our May meeting in Washington immediately following the ANMC meeting and so we hope we will get a little extra participation for the U.S. Metric Board as well as the ANMC by combining the two.

One of the real regrets I have about the decision to phase out the Metric Board and reduce our budget to just absolute bare bones is that the National Council on State Metrication will probably be one of the casualties. One of the good things I think the Board did was sponsoring this organization because I think it is extremely important that State metric people be brought together to discuss common problems and plan common goals just as the National Conference on Weights and Measures brings State people together from the weights and measures community. I think it was quite appropriate for the Metric Board to be the sponsor of that group just as it is appropriate for the National Bureau of Standards, working through the Office of Weights and Measures, to support the National Conference. I regret that because of budget limitations we were not able to fund this on a total basis to get it off to a good start, but we had a pretty good response for the only two meetings we had, simply by funding the travel. It helped a lot in that it at least got the State people into the arena and many of them did come to the meetings even though the State had to pick up the per diem. We planned a third meeting but, unfortunately, that will have to be cancelled. There is a report that has been issued on the last meeting in Des Moines. Some of you attended that meeting and if you would like a copy of the report it is available from the Metric Board Office. At the San Diego Meeting the first week in January, the Board had presented to it two sector plans by the American National Metric Council's committees on instruments, and also on chemicals and allied products. Those plans were reviewed by our staff people and analyzed in view of our guidelines. The Planning and Coordinations Committee reviewed the staff's work and made a recommendation that the Board endorse those plans. The Board, after further study, went along with the endorsement. So, it is rather ironic that we finally got something to do - and did something positive, and now it looks like we are going to be put out of business.

If the Board is not continued, and if the Act is not repealed, then some Federal agency is going to have to accept the responsibility for

carrying out the provisions of the Act assigned to the Board. I have some feelings on that myself and I would like to share them with you so that you can tell me if I am not properly representing your views. If this comes to pass I would hope that this work would be transferred back to the Department of Commerce and, of course, handled at the National Bureau of Standards in the Office of Weights and Measures. If you disagree with that point of view I hope you will express it to me. I am your representative on the U.S. Metric Board, and it is my responsibility to try to represent your views, not necessarily mine, and the only way that I can do that is if you share your views with me.

If I get the opportunity at the hearings I would like to recommend that a small cadre from the U.S. Metric Board staff, which is familiar with all of the things that have been done for some three or four years, might be assigned to this type of work in OWM with proper funding. It makes no sense whatsoever to transfer these responsibilities to anyone unless it is going to be properly funded. And so, I hope you will let me know if you have any feelings to the contrary.

Although the Board's performance has left much to be desired by those of us who favor metrication, some good work has been done. I do not think the Metric Board has had any significant impact on metric conversion in this country. The increasing use of the metric system was occurring in this country before the Board was created, and I think it will continue to increase after the Board ceases to exist. The one thing that really bothers me about Congress terminating the Metric Board is a fear that the general public will perceive it as a withdrawal of the Federal Government's support of this movement. I also fear that those who have opposed metrication will seize the opportunity to spread the word that the movement has failed, and we can now return to business as usual - using our old customary system.

To help overcome such perceptions it will be necessary for those of us who believe metrication is in the best interest of our country to renew our dedication, and increase our support. Therefore, I would like to conclude this report with a recommendation that the 66th National Conference on Weights and Measures restate its belief that conversion to the metric system of measurement is in the best interest of our country, and demonstrate our support of metrication by appointing a committee, or task force, on metrication to further this cause by our own initiatives, and by joining with others, such as the American National Metric Council and the United States Metric Association in raising metric awareness, and encouraging metric use.

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POSITION STATEMENT - THE METRICATION  
OF THE UNITED STATES OF AMERICA

Following the report by Mr. Andrews on the status of the U.S. Metric Board, the Committee discussed its concern regarding the loss of metric information and coordination functions if the Board is dissolved. As a result of the discussion, the Committee agreed on the following resolution:

NATIONAL CONFERENCE ON WEIGHTS AND MEASURES  
POSITION STATEMENT

January 28, 1982

The Metrication of the United States of America

The National Conference on Weights and Measures, upon considering the possibility of the dissolution of the United States Metric Board, has adopted the following position:

The National Conference on Weights and Measures has historically supported and continues to support metrication within the United States, and furthermore recommends the assignment\* of the essential functions of the United States Metric Board, contingent with provisions of funding and staffing, to the Department of Commerce.

\* Note. In the FY 1983 budget, the Federal functions and responsibilities for voluntary metric conversion remaining after the U.S. Metric Board is terminated have been assigned to the Office of Productivity, Technology, and Innovation of the Department of Commerce.

105-1        ADMINISTRATION STATEMENT ON METRICATION

President Ronald Reagan sent the following letter dated March 9, 1982 to Louis Polk, Chairman of the U.S. Metric Board:

I want to thank the past and present members and staff of the U.S. Metric Board for your service to the Nation in reducing the obstacles to voluntary metrication. You have succeeded in your objective of educating the American people about the meaning of metric measurements in everyday life.



I appreciate your cooperation in the orderly phaseout of the Board's activities as part of my program to reduce government spending and streamline its operations.

As you know, the Secretary of Commerce will be responsible for my Administration's continued support of voluntary metrication. I am sure that Secretary Baldrige and his staff will appreciate any advice you and the Board may have to offer with respect to his enhanced responsibilities.

Let me assure you of my support for the policy of voluntary metrication expressed in the Metric Conversion Act of 1975.

Finally, I want to personally thank you for your career of service to the Nation in the field of metrology.

With best regards,

106

REPORT ON THE INTERNATIONAL ORGANIZATION  
OF LEGAL METROLOGY (OIML)

The committee was pleased to receive the following report from Mr. David Edgerly, Manager of Domestic and International Standards Program, NBS.

Over the past year, OIML committees have been very active in areas of interest to the NCWM. In September 1981, an international seminar on electronic weighing and metering systems was held in Boras, Sweden, to exchange views on the various approaches to verifying the performance of electronic equipped weighing and metering systems. In October 1981, the French sponsored a working group meeting on grain moisture meters at which a 3rd pre-draft OIML International Recommendation was reviewed. As a result of this meeting, a 4th pre-draft has been circulated within OIML member nations for approval. In May 1982, the United States hosted another meeting of OIML PS7/RS2 on electronic weighing systems to discuss its 2nd pre-draft International Recommendation. A final draft OIML Recommendation on load cells was also completed during this past year. Work is also proceeding in OIML on methods and devices for verifying liquid metering devices and on revision of the OIML Recommendation on measuring tapes and rules.

Activity has also begun within OIML on packaging and labeling under a committee chaired by the United States. This work (under PS20) will focus on package labeling requirements and on methods for verifying package quantity of contents declarations. Representatives of OWM and/or the NCWM have taken part in all of these activities.

The United States has assumed responsibility for a technical committee on packaging within OIML. Initial concern centers on harmonizing requirements relating to labeling and to statistical methods for verifying package quantity of contents declarations. Accordingly, an organizational meeting for the purpose of establishing U.S. National Working Groups to assist with developing recommendations dealing with package labeling and sampling is being held in conjunction with the National Conference on Weights and Measures. Working groups for the parent committee and the subcommittee on labeling are to be considered.

E. C. Heffron, Michigan, Chairman - NCWM  
 J. J. Bartfai, New York, Chairman - L&R Committee  
 F. Nagele, Michigan, Chairman - S&T Committee  
 K. J. Simila, Oregon, Chairman - Liaison Committee  
 J. L. Swanson, Alaska, Chairman - Education Committee  
 A. D. Tholen, NBS, Executive Secretary - NCWM

#### COMMITTEE ON NATIONAL MEASUREMENT POLICY AND COORDINATION

(On motion of the Committee chairman, the report of the Committee on National Measurement Policy and Coordination voting key items 100 through 106 was adopted in its entirety by the Conference. The results of the voting in the House of State Representatives and the House of Delegates under the Conference voting system are totalized in the table that follows. The Conference also authorized the Executive Secretary to make any appropriate editorial changes in the language adopted by the Conference.)

#### VOTING RESULTS--Committee on National Measurement Policy and Coordination

Voting Key	House of State Representatives		House of Delegates	
	Yes	No	Yes	No
101	46	0	38	0

FINAL REPORT  
OF THE  
COMMITTEE ON LAWS AND REGULATIONS

VOTING KEY

200

The Committee on Laws and Regulations presents its report to the 67th National Conference on Weights and Measures. This report consists of the interim report as printed in the Conference Announcement and as amended by the final report. The report comprises recommendations of the committee formed on the basis of written and oral comments received during the year and oral presentations made during the general meeting of the committee.

All section references and references to model regulations are with respect to National Bureau of Standards Handbook 130, 1982 Edition, "Model State Laws and Regulations" (H-130).

NOTE: Except where paragraphs or sections are to be added or completely revised, changes to Handbook 130 are shown as follows: that which is to be deleted is shown lined out, and that which is to be added is underlined.

201

HANDBOOK 130 - GENERAL

201-1      ADOPTION BY CITATION

(This item was carried over from the 66th NCWM, 1981, in which it was assigned voting key 201-1.)

At the 1980 annual meeting of the National Conference, the Laws and Regulations Committee was asked to explore a workable method of adoption by the States of Handbook 130 "Model State Laws and Regulations" by citation. Chairman John J. Bartfai asked Allen J. Farrar, Legal Advisor for the National Bureau of Standards, to select a special study group with representatives from State government and industry. Members of the group are Neil D. Magnus, Deputy Attorney General, Division of Law and Public Safety, State of New Jersey, and Neal D. Peterson, attorney for General Mills, Inc.

The special study group met on February 6, 1981 and agreed to prepare a questionnaire for State officials to determine current practices regarding adoption of model laws and model regulations. The questionnaire was prepared and reviewed by group members and in consultation with the Office of Weights and Measures of the National Bureau of Standards. During March 1981, the questionnaire was sent by Chairman Bartfai to all State officials and the District of Columbia.

The questionnaire asked for information on the manner in which each State adopted Handbooks 44 and 130 and subsequent changes in those model laws and regulations. An analysis of responses as prepared by the special study group follows.

Analysis of Adoption by Citation Survey

by A. J. Farrar, N. D. Magnus, and N. D. Peterson

Forty-three States and the District of Columbia (which will hereinafter be referred to as a State), responded to the survey. A summary of the responses follows:

QUESTION 1(a) - How does your State adopt revisions of NBS Handbook 44?

Nineteen States do so by statute: Alaska\*, Arkansas\*, Georgia, Illinois, Maine\*, Maryland\*, Michigan, Mississippi\*, New Hampshire\*, North Carolina, North Dakota, Oklahoma\*, Pennsylvania\*, Utah\*, Vermont\*, Virginia\*, Washington\*, West Virginia, and Wisconsin\*.

Eighteen States adopt such revisions by regulation: Alabama, Colorado\*, the District of Columbia, Florida, Idaho, Iowa, Kansas, Louisiana, Massachusetts, Minnesota, New Mexico\*, Nevada, Ohio, Oregon, Rhode Island, South Carolina, Texas, and Wyoming.

Seven States adopt revisions by statutes and implementing regulation: California, Connecticut\*, Missouri\*, New Jersey, New York\*, South Dakota, and Tennessee.

Thirteen of the 18 States that provide for automatic adoption of revisions do so by statute, two by regulation, and three by statute and implementing regulation.

North Carolina said it had assumed that revisions are automatically incorporated, although their statute does not specifically refer to revisions. However, their legal staff has raised questions about this point; they are therefore considering adopting the handbook by regulation so that revisions can be incorporated as they are introduced.

Wyoming has a regulation which states that the "current edition" of Handbook 44 shall govern; however, changes do not seem to be adopted automatically because, in response to a later question, they responded that notice and hearing were required to adopt Handbook 44.

Although three of the named "statute and implementing regulation" States indicated that their statutes and implementing regulation provide for automatic adoption of revisions, Tennessee probably does also;

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\*States identified with asterisk provide for automatic adoption of revisions.



however, we did not have a copy of its implementing regulation at the time of this survey in order to verify this.

See figure 1(a) for a graphical summary of this question.

QUESTION 1(b) - How does your State adopt revisions to the model regulations in NBS Handbook 130?

Five States adopt revisions to the model regulations by statute: Florida, Louisiana, Maryland, New Hampshire, and Vermont.\*

Fourteen States adopt revisions of Handbook 130 by regulation: Florida\*\*, Illinois, Louisiana\*\*, Massachusetts, Minnesota, New Mexico, Nevada, Oklahoma, Oregon, Pennsylvania, South Carolina, Texas, Washington, and West Virginia. One of these States qualified its response by saying that some of the changes to Handbook 130, are "so broad that only the Legislature could enact them."

Six States utilize statutes and implementing regulations: Connecticut, Iowa, Michigan, New Jersey, South Dakota, and Tennessee.

Two States fall into an "other" category: the responses of Maine (which automatically adopts the Model State Packaging and Labeling and Method of Sale Regulations) and Rhode Island were not definitive enough to be categorized.

Thirteen States have not adopted Handbook 130: Alaska, Arkansas, Colorado, the District of Columbia, Kansas, Mississippi, Missouri, New York, Nevada, North Carolina, North Dakota, Wisconsin, and Wyoming. Some of these States reported, however, in other surveys such as the one compiled and reported in Handbook 130 that they have adopted certain individual model laws or regulations of which Handbook 130 is composed.

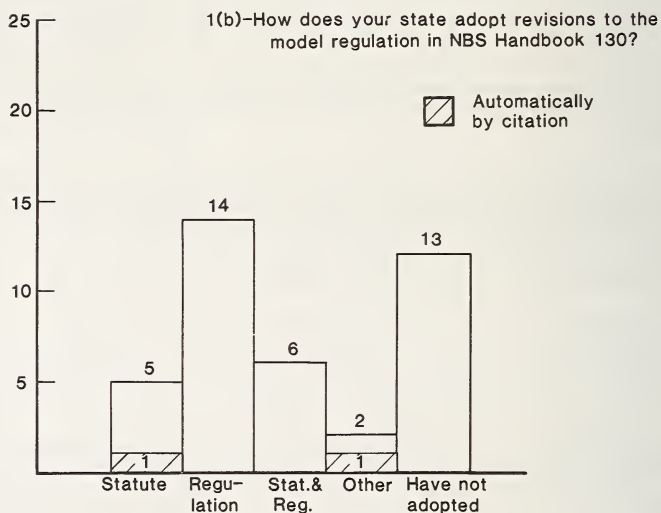
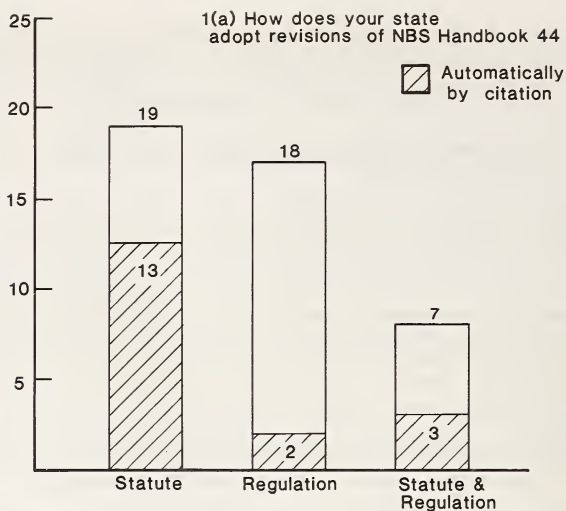
Vermont is the only State reporting adoption of revisions of Handbook 130 automatically by citation. It does so by statute. Maine adopts part of Handbook 130 automatically.

See figure 1(b) for a graphical summary.

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\*States identified with asterisk provide for automatic adoption of revisions.

\*\*Florida and Louisiana adopt portions of Handbook 130 by statute and portions by regulation, so they have been included in both categories in the graphical summary.



QUESTION 2(a) - In order to adopt NBS Handbook 44 does the procedural law of your State require:

Public Hearings	- 0
Public Notice	- 2
Public Notice and Hearings	- 26
Other requirements	- 1

Thirteen States require none of the above because adoption is automatic.

Of the notice and hearing States, three require hearings only if one is requested by 25 or more people, and in two others the hearing requirement is waived if no one asks for one. In that same category some additional requirements were: review of the regulation by the State Office of Administrative Law (California), review by an Administrative Procedure Committee (Florida), review by the Attorney General and a legislative review committee (Connecticut and Kansas), and legislative approval of any regulation (required by two States). One of the notice and hearing States also reported that both would be required if it were adopting such changes by regulation, but that the State, in fact, adopts changes by statute.

There are several problems with question 2(a). As written, it can be understood as asking what the procedural requirements for initial adoption of Handbook 44 are. The answer obviously would vary depending on whether the States chose to do so by statute or by regulation.

However, the question may have been interpreted differently by different States. Some may have read it as referring to the procedural requirements applicable to the adoption of revisions of Handbook 44, which led thirteen States to respond that there were none because they adopt revisions automatically, and some may have read it as referring to the initial adoption of H-44, which caused other automatic adoption States to respond that a variety of procedures were required.

The same problems are also found in part (b) of Question 2, and they may explain the inconsistency between these responses and those to both parts of Question 1.

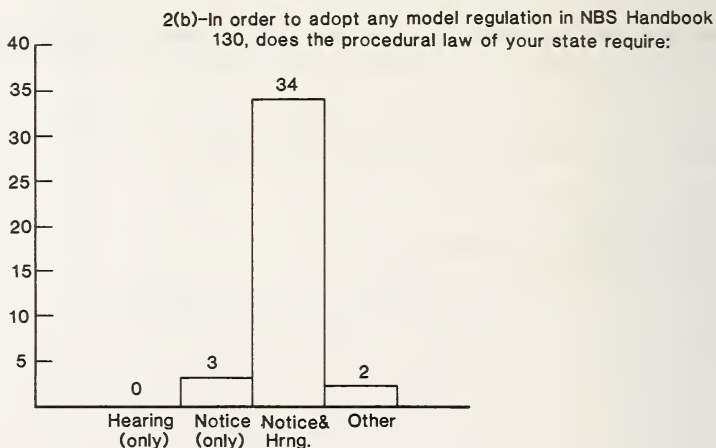
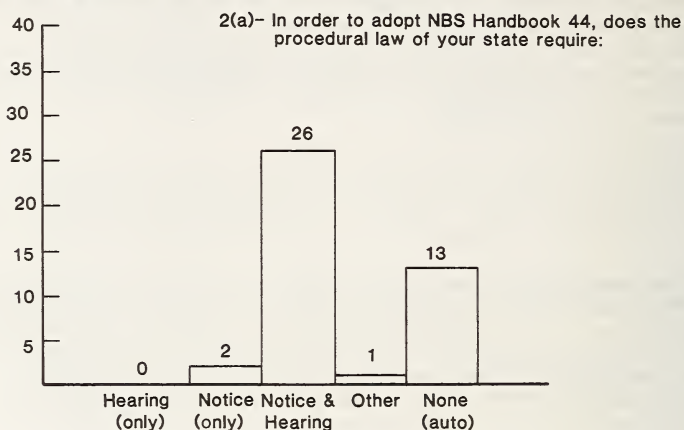
QUESTION 2(b) - In order to adopt any model regulation in NBS Handbook 130, does the procedural law of your State require:

Public Hearings	- 0
Public Notice	- 3
Public Notice and Hearings	- 34
Other Requirements	- 2

One of the "public notice" States said that hearings, although not required, are held as a matter of course. Three notice and hearing States said a hearing is required only if requested by an interested party, while three others in that group said that a hearing is required only if requested by 25 or more people.

Two notice and hearing States reported that they have not adopted any model regulations in Handbook 130, but said that a notice and hearing would be required if they had adopted any model regulation.

Regarding other requirements, one notice and hearing State requires review by its Board of Agriculture and the Legislature; California, Connecticut, Florida, and Kansas have the same requirements as they set forth in their response to Question 2(a) above; and another State also has legislative review requirements.





QUESTION 3(a) - What is the frequency in your State of adopting revisions of NBS Handbook 44 following recommendations of such adoption by the National Conference on Weights and Measures?

Yearly	- 15
Other than yearly	- 11, including:
Every other year	- 3
As often as necessary	- 3
Every 3 to 5 years	- 1
Varies	- 1
Very infrequently	- 1

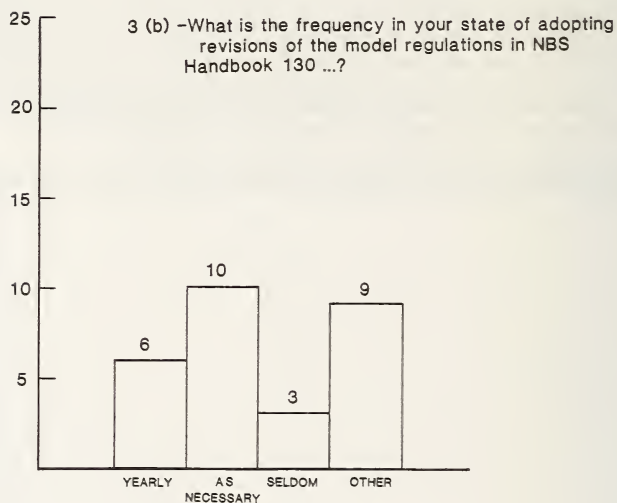
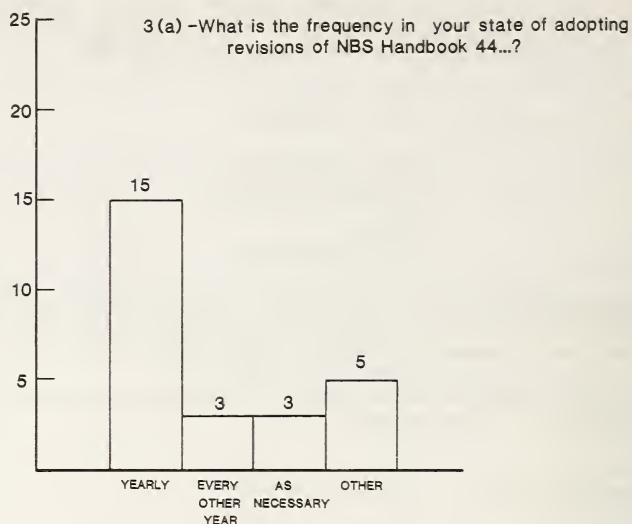
Of the two remaining "other than yearly" responses, one said "as soon as possible after recommendation by NCWM," and the other said "never in the past but recommending yearly in the future."

QUESTION 3(b) - What is the frequency of adopting revisions of the model regulations in NBS Handbook 130?

Yearly	- 5
Other than yearly	- 23, including:
As deemed necessary	- 10
Seldom	- 5
Every 2 years	- 1

Other responses under the "other than yearly category" included - "whenever possible," "depends on type of change, internal factors" "as soon as possible after recommendation by NCWM," "no established schedule," "H-130 has not been adopted," "H-130 is only used as a guideline" and "none in the past but recommending yearly in the future." Eight States said or implied that the question was not applicable because they had not adopted the Handbook.

In addition, one State which answered yearly said adoptions were by reference.



QUESTION 4 - Which version (year) of the model regulations in NBS Handbook 130 has your State adopted?

Packaging & Labeling

None	- 4
Unknown	- 2
A few parts of 1953	- 1
1964	- 1
1966	- 1
1968	- 2
1970	- 1
1970, with '79 revisions	- 1
1971	- 2
1972	- 2
1973	- 1
1974	- 2
1975	- 1
1976, with amendments	- 1
1979	- 2
1980	- 2

Method of Sale

None	- 13
A few parts of 1953	- 1
1964	- 1
1969	- 1
1971	- 1
1972	- 1
1973	- 2
1975	- 1
1976	- 1
1979	- 2
1980	- 1
Portions only	- 11

Unit Pricing

None	- 23
Enforced by another agency	- 1
1964	- 1
1971	- 1

Registration of Servicepersons and Agencies

None	- 11
Own licensing law	- 1
Unknown	- 2
1959	- 1
1964	- 1
1966	- 1
1969	- 1
1970	- 2
1970 with 79 revisions	- 1
1971	- 1
1974	- 1
1978	- 1
1979	- 1
1980	- 2

Open Dating

None	- 21
1971	- 1
1974	- 1

Eight States said that they had not adopted any version of Handbook 130.

QUESTION 5 - Would your State consider adopting model regulations that you deem appropriate either as guidelines or intact as written?

Packaging and Labeling

Guidelines	- 19	
Intact	- 15	
Neither	- 3, including:	
	"Have own version"	- 1

Method of Sale

Guidelines	- 18
Intact	- 10
Neither	- 5, including one State with no authority to adopt such a regulation, and two with own law on the subject.

Unit Pricing

Guidelines	- 11	
Intact	- 8	
Neither	- 12, including:	
	"Own law"	- 1
	"Too many uncontrollable variables"	- 1
	"Insufficient public support, legislative sympathy or departmental interest"	- 1

Registration of Servicepersons and Agencies

Guidelines	- 18	
Intact	- 7	
Neither	- 7, including:	
	"Covered by statute"	- 2
	"Not cost effective"	- 1

Open Dating

Guidelines	- 19	
Intact	- 6	
Neither	- 10	
	Of the States which answered "Neither,"	
	7 furnished additional comments as shown below	
	"Covered by statute"	- 1
	"Another agency handles"	- 3
	"Being considered by legislature"	- 1
	"Shortage of help"	- 1
	"Too many uncontrollable variables"	- 1
	"Insufficient public support, etc."	- 1



Additionally, one State gave no specific answers but said that it "by and large adopted the model regulations intact." Another simply responded "yes."

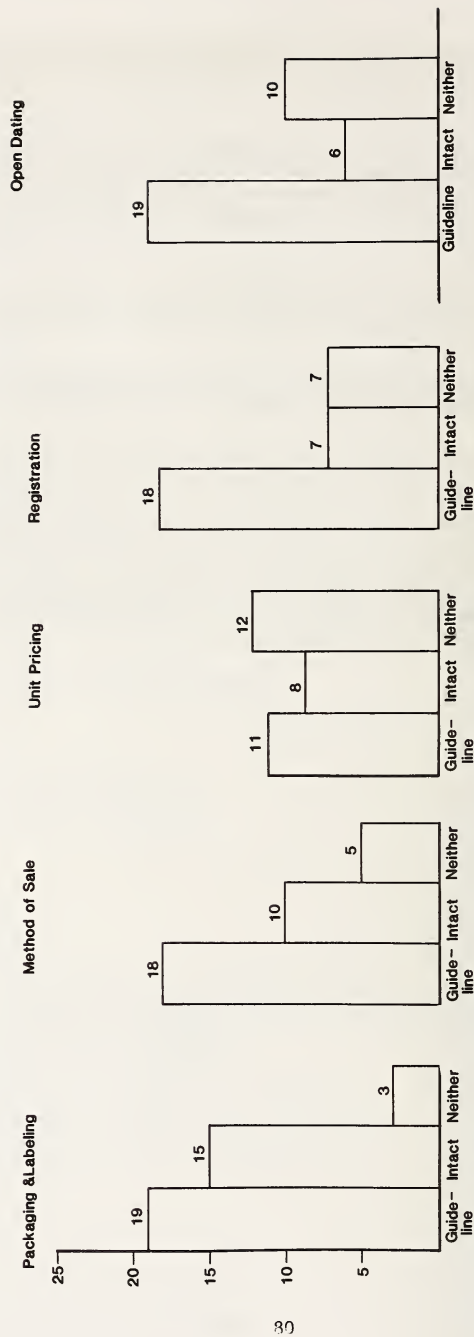
One State, which said it would consider adopting Unit Pricing and Open Dating regulations intact, qualified that information by adding that the Legislature, however, had already done something different. Another gave a similar response to the Registration of Serviceperson and Service Agency regulation.

Regarding the Registration of Serviceperson regulation, one State in the "Neither" category said that it believed "the regulation should be mandatory, with penalties for violations."

One State responded "Neither" to all model regulations in Handbook 130 because it "provided adequate regulation in other formats."

An estimate of the level of error that may exist in responses to Questions 4 and 5 was obtained by comparing the responses received to this questionnaire with the results of another Committee on Laws and Regulations Survey of the Model Regulation for the Registration of Servicepersons and Service Agencies. Of 10 States that are known to have adopted the Model Registration Regulation intact, and to have also responded to this questionnaire, six States answered by checking "guidelines," two States did not answer this part, and only two States correctly checked "intact as written."

5- Would your state consider adopting those model regulations that you deem appropriate (either) as guidelines or intact as written



QUESTION 6 - Two versions of Question 6 were asked. Thirty-one of the 44 returned questionnaires contained the following Question 6:

How does your State adopt administrative regulations? Do regulations originate with the Legislature or with administrative agencies? Please provide copies of procedural statutes, regulations, court decisions or Attorney General opinions that control the process.

Ten States responded merely that regulations originate with administrative agencies. One State advised that there was no legislative review of its regulations, another said that notice of the proposed rulemaking is required to be given, and one State said that notice and hearing are required.

Seven States said that their regulations originate with administrative agencies, but are subject to review by the Legislature or some part thereof. One of those seven also has a provision for review by the Attorney General. One State said that a hearing is required, as well as review by the Governor and the Legislature.

One State said that it requires notice, hearing, and review by the State's Administrative Procedure Committee.

One State said that its regulations originate with administrative agencies; after notice and hearing they are referred to the State Attorney General for review and recorded with the Secretary of State. In that State all regulations by statute have a two year sunset provision. This State is currently in the process of rewriting its statutes to cover all important matters formerly covered by regulations, so that they need not be re-enacted every two years.

One State responded that administrative regulations may originate with either the administrative agency, the Legislature, or both.

One State (Alabama) reported regulations are promulgated after notice and a hearing before the State Board of Agriculture and Industries.

The remaining 13 questionnaires contained this version:

How are federal regulations and subsequent revisions thereof adopted in your State (i.e., regulations appearing in the Code of Federal Regulations)? ... Bear in mind that NBS Handbook 44 and the model regulations in NBS Handbook 130 are not federal regulations.

By Statute	-	1	
By Regulation	-	2	
By Statute and Implementing Regulation	-	4	
Other	-	2, including:	
	By administrative agencies	-	1
No Answer	-	4	

#### Other Possible Inconsistencies in Survey Responses

In addition to the inconsistencies discussed under Questions 2, 4, 5, and 6, the responses of several States displayed other apparent internal inconsistencies, which reflect a difference between the information intended to be collected by the study group and the understanding of the question by those responding.

The District of Columbia stated that it adopted revisions of Handbook 44 by statute and, in support, attached a copy of an Order of the City's Board of Commissioners adopting the handbook. Evidently the Board of Commissioners have legislative powers in the city.

California stated that revisions to Handbook 130 were adopted by statute and implementing regulation and that it adopts revisions yearly. It then stated, in response to Question 4, that it has not yet adopted Handbook 130's model regulations.

New Hampshire said that it adopts revisions of Handbook 130 automatically, and yet in response to Question 4 it said it had adopted the following versions of the model regulations: 1969 (Packaging and Labeling), 1969 (Method of Sale), 1974 (Unit Pricing), 1970 (Registration of Servicepersons and Agencies), and 1974 (Open Dating). New Hampshire may have responded with the year of initial adoption of these regulations. It also said that it adopted Handbook 130 revisions by statute, but supplied copies of model regulations in support.

Tennessee responded that it adopts revisions to Handbook 44 by statute. However, the statute supplied requires its Commissioner of Agriculture to adopt regulations with regard to tolerances, specifications, etc., and provides that these standards shall be those contained in Handbook 44, with revisions. Therefore, Tennessee is classified in the "statute and implementing regulation" category, although this classification has resulted by inference.

#### Additional Materials Submitted

Eight States submitted additional materials regarding adoption of future amendments by reference. They are:

Alaska -- Chapter 11 of the Alaska Administrative Code says that under presently controlling court decisions, an agency may not adopt by reference future amendments of standards promulgated by third parties.



Connecticut -- Attorney General's Opinion that the State Weights and Measures Chief feels upholds their statute, which adopts future amendments of Handbook 44 automatically. However, the opinion does not address itself to the issue of whether amendments adopted after the enactment of the statute are properly incorporated therein.

Hawaii -- State statute prohibits adoption of future amendments of third party standards through the use of such terms as "as may be amended," among others. A specified version of these standards must be adopted.

Idaho -- State administrative procedure act, in a section governing incorporation by reference, requires compliance with the same notice and hearing provisions governing the original adoption when incorporating subsequent amendments.

Iowa -- State Agriculture Department's legal counsel makes the following statement: "In adopting federal regulations through administrative rule or the legislative process, it is essential that the federal regulations be limited to a given date."

Kansas -- Two cases and an Attorney General's Opinion were cited, stating that adoption by reference must be to a specific version. Adoption of future amendments is an unlawful delegation of legislative authority.

Michigan -- Attorney General's Opinion was cited, reaching the same conclusion as the materials supplied by Kansas, above. The opinion cites a Michigan case upon whose holding the opinion is based.

North Carolina -- Its statute as written adopts Handbook 44 by reference without any mention of revisions. They have been assuming that revisions were automatically adopted. However, due to questions raised by their legal staff, they are considering adopting the Handbook by regulation so that they may incorporate revisions as they are adopted.

#### Study Group Observations

Although there were a few problems, this survey was quite useful in that we now know that at least 18 States, and possibly as many as 19, presently permit incorporation of future amendments of Handbook 44 by reference (it is possible that this approach could be used for Handbook 130). We now also know that seven of the eight States listed above under the heading "Additional Materials Submitted" have problems with adopting something not yet in existence. But as for the remaining States, we still do not know how many of them have a definite prohibition against such an approach.

### Study Group Recommendations

The Study Group met again on July 1, 1982, in order to prepare recommendations for the Committee. These are:

1. A notification of changes and actions taken at the National Conference should be communicated to the weights and measures administrators by the Chairman of the Conference as promptly as possible following the annual meeting. The Study Group feels such communication would prove beneficial in that it would give the States added impetus to start the necessary procedures that would bring about the incorporation of those changes or other NCWM actions in the States' weights and measures laws and regulations. Further, this prompt notification is preferable to that of simply allowing the delegates to return to their respective States carrying with them their notes and recollections of such changes as may have taken place or of waiting for the official report of the Conference to be issued some six or seven months after the Conference has ended.
2. The Study Group feels that adoption by the States of the model laws and model regulations in Handbook 130 might receive a more favorable and speedy acceptance if the title of Handbook 130 was changed by substituting the word "uniform" for the word "model" in the title. The Study Group recognizes that such change may be viewed as merely cosmetic rather than substantive. The word "model" is intended to provide a guide for the States and thereby allow each State to utilize those portions of the model laws or regulations which best fit its requirements rather than simply adopting it in totality which is what the word "uniform" might seem to imply. In fairness, it should be pointed out that the decision to offer this recommendation was more or less evenly divided among the members of the Committee. While the issue is not free from doubt as to its wisdom or possible effectiveness, it is apparent that the adoption of the regulations in Handbook 130 has gone on at a rather slow pace. Hence, on balance, it is felt that the change could prove helpful. Lawyers, who after all are instrumental in bringing about the necessary adoption (inasmuch as the process of adoption is essentially a legal process), are relatively more comfortable through experience and training with a "uniform" law or regulation than with so-called "model" laws or regulations.
3. In order to encourage the adoption by citation of the regulations in Handbook 130, several sections should be added to the Model State Weights and Measures Law the wording of which would be similar to that of Section 4 concerning Handbook 44. The Study Group proposes to provide wording for these several sections that would immediately follow Section 4 of the Model State Weights and Measures Law and that would permit automatic adoption of each of the regulations set out in Handbook 130. As there is insufficient time between now and the Conference to provide the appropriate wording for those new

sections, it is requested that the Committee agree to give the Study Group additional time to draft such sections for consideration by the Committee at its next interim meeting. Such wording, if it were then approved by the Committee, could be presented for next year's Conference.

In connection with this latter recommendation, the Study Group proposes that a transmittal letter be furnished to the Superintendent of Weights and Measures of each State urging him to coordinate with the Attorney General of his State the wording of those sections so as to be certain that such wording is not contrary to the constitutional requirements of that particular State. The Study Group will prepare for consideration by the Committee such a transmittal letter. The Study Group will furnish the Committee a draft of such a letter at the same time that the proposed wording of the new sections is provided.

#### Committee Recommendation

The Committee recommends continuation of this task by the Special Study Group and that this item be carried over.

(Item 201-1 was adopted.)

#### 202                    MODEL STATE WEIGHTS AND MEASURES LAW

##### 202-1            SECTION 12. SALE FROM BULK

The Northwest and the Western Weights and Measures Associations proposed modifications to this section in order to permit retail motor fuel deliveries to be sold without a delivery ticket even though a single delivery can easily exceed \$20 as provided in the Model Law.

The Committee discussed the two alternatives proposed by each association: (1) exempting retail motor fuel deliveries up to and including 30 gallons; (2) changing the requirement for a delivery ticket from sales in excess of \$20 to sales in excess of \$100.

The Committee is opposed to the second solution, namely raising the dollar value of sales for which a delivery ticket is required because other commodities (such as firewood) are delivered as a sale from bulk and the Committee feels the consumer deserves a receipt for delivery in these instances.

When the Committee investigated the first solution offered, namely exempting retail motor fuel deliveries of less than 30 gallons, it became apparent that the problem was not Section 12, but the definition of "Sale from Bulk," Section 1.8. It reads:

The term "sale from bulk" means the sale of commodities when the quantity is determined at the time of sale.



This definition would require a delivery ticket with any purchase over \$20--from a butcher (for example) when he or she weighs the product at the time of sale even though the process of weighing can be seen by the purchaser. Similarly, a retail motor fuel delivery can be witnessed by the buyer as to the amount delivered by the fuel dispenser. In fact, the Committee believes the intent of Section 12 is to protect the consumer when he or she is not able to witness the measurement as when heating oil or other fuel is delivered to a home, prewrapped and frozen packages from a side of beef are delivered, etc. If this is in fact the intent of Section 12, as the Committee believes it is, then Section 1.8 should be modified.

The Committee recommends discussion of this issue at the annual conference and asks for additional input and interpretations by interested parties. The Committee does not intend to recommend a change to the Model Law at this time, but if the Committee's interpretation is correct, a change of wording of Section 1.8 should be considered in the coming year. As a first draft of such wording, the Committee offers the following for information only:

SECTION 1.8. SALE FROM BULK: The term "sale from bulk" means the sale of commodities when the quantity is determined at the time of sale, and the buyer or seller is not able to witness the measurement.

The Committee recommends that this item be carried over.

(Item 202-1 was adopted.)

203            MODEL STATE PACKAGING AND LABELING REGULATION

203-1        FOOD AND DRUG ADMINISTRATION REVIEW OF MODEL REGULATIONS

(This item was carried over from the 66th NCWM, 1981, in which it was assigned a voting key of 204-4.)

In 1981, the Liaison Committee requested the Food and Drug Administration (FDA), Federal Trade Commission (FTC), and the U.S. Department of Agriculture (USDA) to review the Model State Packaging and Labeling Regulation as to the consistency of the NCWM model regulation metric labeling provisions with Federal regulations. No response has yet been received from USDA, and FTC responded that the Fair Packaging and Labeling Act requires metric equivalents to be stated on packages in the same way as inch-pound disclosures are made (this means the Models are consistent with FTC requirements in this regard). FTC also provided a copy of its staff guidelines pertaining to metric. Further communications will be made with FTC to determine the force and effect of these guidelines and whether the NCWM models can be seen to be in conflict with such guidelines.

The FDA provided a considerable review of the Model State Packaging and Labeling Regulation, the Model State Regulation for the Method of Sale of Commodities, and the Guidelines for the Method of Retail Sale for Fresh Fruits and Vegetables (adopted by the NCWM in 1980). FDA's review covered more than the question of consistency of optional



metric labeling. The Committee discussed each comment by FDA with a representative of FDA at the Interim Meetings.

Each comment in reference to the Model State Packaging and Labeling Regulation is addressed below. Comments in reference to the Model State Regulation for the Method of Sale of Commodities are found in voting keys 204-1 and 206-6 and that comment pertaining to the Guidelines for the Method of Sale for Fresh Fruits and Vegetables is taken up in voting key 206-7.

203-1-1 SECTION 2.2. CONSUMER PACKAGE: PACKAGE OF CONSUMER COMMODITY

FDA suggested changing "customarily produced or distributed for sale" to "sold" in order for the Model to have the same wording as FDA regulations. The Committee argued that such change in wording might endanger the jurisdiction of weights and measures in warehouse or packaging plant locations where packages are not sold but are produced or distributed for sale. Therefore, the Committee recommends no change to the present wording.

203-1-2 SECTION 6.1. GENERAL (PACKAGES SUBJECT TO FAIR PACKAGING AND LABELING ACT)

FDA suggested inserting a caution that packages subject to the Fair Packaging and Labeling Act (FPLA) must be labeled in inch-pound units. Metric units may also be declared and may even appear first on the label, but inch-pound units must be declared. The Committee recommends, therefore, a footnote be added to Section 6.1. as follows:

Packages subject to the Federal Fair Packaging and Labeling Act must be labeled in inch-pound units of measure. Metric units may also be declared on the principal display panel and may even appear first.

203-1-3 SECTION 6.3. NET QUANTITY

FDA recommended referencing aerosol packages. Therefore, the Committee recommends the following revision:

6.3. NET QUANTITY. -- A declaration of net quantity of the commodity in the package, exclusive of wrappers and any other material packed with such commodity (except as noted in Section 10.3) shall appear on the principal display panel of a consumer package and, unless otherwise specified in this regulation (see subsections 6.7. through 6.8.3.), shall be in terms of the largest whole unit.

203-1-4 SECTION 6.5.2. UNITS OF TWO OR MORE MEANINGS

FDA recommended amplifying or omitting the phrase "such distinction may be omitted when...the proper meaning is obvious" because it seems to ignore the requirements for the dual declaration for sizes less

than one gallon. The Committee argues that this section was not meant to indicate that dual declaration was not necessary, but instead to indicate that the word "fluid" could be dropped under certain circumstances. The Committee, therefore, recommends inserting in the example the full net contents label so that there will be no misunderstanding of the intent. The Committee recommends the following revision:

6.5.2. UNITS OF TWO OR MORE MEANINGS. -- When the term "ounce" is employed in a declaration of liquid quantity, the declaration shall identify the particular meaning of the term by the use of the term "fluid"; however, such distinction may be omitted when, by association of terms (for example, as in "20 fluid ounces, 1 pint 4 ounces"), the proper meaning is obvious. Whenever the declaration of quantity is in terms of the dry pint or dry quart, the declaration shall include the word "dry."

203-1-5 SECTION 8.2.1. MINIMUM HEIGHT OF NUMBERS AND LETTERS

The FDA recommended deleting the proviso in this section concerning the minimum height standard for the "m" in the symbol "mL" since this conflicts with FDA regulations. (This proviso does not agree with FTC staff guidelines on metric either.) The Committee recommends the following revision:

8.2.1. MINIMUM HEIGHT OF NUMBERS AND LETTERS. -- The height of any letter or number in the required quantity declaration shall be not less than that shown in Table 1 with respect to the area of the panel, and the height of each number of a common fraction shall meet one-half the minimum height standards; ~~Provided-in-the case-of-the-symbol-for-milliliter, the-"m"-shall-meet-one-half the-minimum-height-standard.~~ In the case of the symbol for milliliter, the "m" shall meet the minimum height standard.

203-1-6 SECTION 10.3. AEROSOLS AND SIMILAR PRESSURIZED CONTAINERS

FDA made no specific recommendations at this time, but noted in written comments to the Committee that FDA has not yet responded to the NCWM petition to require net weight on aerosols. Therefore, the Committee recommends no change to this section.

203-1-7 SECTION 13.1.(a) "CENTS-OFF" REPRESENTATIONS

FDA recommended adding further examples such as are described in FDA regulations. The Committee recommends the following revision:

13.1. "CENTS-OFF" REPRESENTATIONS. --

- (a) The term "cents-off representation" means any printed matter consisting of the words "cents-off" or words of similar import (bonus offer, 2 for 1 sale, 1¢ sale, etc.) placed

upon any consumer package or placed upon any label affixed or adjacent to such package, stating or representing by implication that it is being offered for sale at a price lower than the ordinary and customary retail sale price.

203-1-8 SECTION 13.1.(b)(5)a. "CENTS-OFF" REPRESENTATIONS

FDA recommended rewording this section to fully conform to existing FDA regulations. As currently stated, the Model is a word-for-word copy of FTC regulations. Therefore, the Committee recommends no change at this time. The Committee will investigate whether FDA and FTC requirements are consistent and whether other means can be devised in order to make the Model consistent with both FDA and FTC regulations.

(Item 203-1 was adopted.)

203-2 NONWOVEN SYNTHETIC SCOURING PADS: VARIATIONS FROM DECLARED NET QUANTITIES

(This item was carried over from the 66th NCWM, 1981, in which it was assigned a voting key of 202-3.)

The Committee received more detailed data from the 3M Company concerning their request for individual package variations specific for this commodity. After lengthy discussion, the Committee did not feel ready to endorse 3M's request yet because:

- o The data provided by 3M covered only one size of product (approximately 9" by 6" dimensions). The Committee would like to see measurement data on other sizes of products if it is to consider a special variation for nonwoven synthetic scouring pads in general.
- o There was no information provided by 3M as to whether the data on non-3M products is from one or several competitors. The Committee would ideally like to see data from as many manufacturers as possible before making any recommendations.

The sentiments of the Committee will be transmitted to 3M together with its thanks for 3M work and cooperation to date.

The Committee emphasizes that the variations that are being considered here are not tolerances for all packages but are, instead, maximum individual package variations to be used in addition to the average requirement for a lot, shipment, or delivery. The Committee recommends holding this item over the coming year.

(Item 203-2 was adopted.)

203-3 BAKERY PRODUCTS: VARIATIONS FROM DECLARED NET WEIGHTS

The American Bakers Association proposes the need for special variations for bakery products similar to Section 10.9.3. Textiles: Variations from Declared Dimensions. Neither the permitted variations in Handbook 67 ("Unreasonable Minus or Plus Errors") or in Handbook 133 ("Maximum Allowable Variations") are large enough, they contend,

for the special quality control problems prevalent in their industry. The Association and several individual members met with the Committee and described some of the special problems facing those producing yeast-leavened or chemically-leavened bakery products. The major problem cited was that there are several steps after dividing the dough prior to packaging a finished product (rising, baking, cooling, slicing, icing, etc.) that contribute greatly to final package weight variations; however, only the initial dividing of the dough permits direct control by the packager. The Association intends to provide data to the Committee to indicate the extent of their need. They intend to provide data on several types of products and several different bakeries (both large and small). They have also requested the assistance of the Office of Weights and Measures, National Bureau of Standards, to guide them in data collection and compilation.

The Committee recommends carrying this item over until a specific proposal is offered.

The Committee would like, however, to clarify the intent of this proposal as well as the interpretation of Section 10.9.3. Variations from declared contents are not to be interpreted as tolerances for all packages. It is intended that these variations are to be applied to individual packages only; the average net contents of a lot, shipment, or delivery must still equal or exceed the label declaration (the average requirement).

(Item 203-3 was adopted.)

204        MODEL STATE REGULATION FOR THE METHOD OF SALE OF COMMODITIES

204-1        FDA REVIEW: PACKAGES SUBJECT TO FAIR PACKAGING AND LABELING ACT

As discussed in voting key 203-1-2 with respect to the Model State Packaging and Labeling Regulation, the Committee recommends a footnote be added to Section 1 and Section 2 headings of the Method of Sale Regulation as a caution that packages subject to FPLA must be labeled in inch-pound units. The Committee recommends the footnote to read as follows:

Packages subject to the Federal Fair Packaging and Labeling Act must be labeled in inch-pound units of measure. Metric units may also be declared on the principal display panel and may even appear first.

(Item 204-1 was adopted.)

204-2        SECTION 1.3. BUTTER, OLEOMARGARINE, AND MARGARINE

(This item was carried over from the 66th NCWM, 1981, in which it was assigned a voting key of 203-1.)

The NCWM voted last year to retain the 500 g size permitted in Section 1.3.(b) for butter, oleomargarine, and margarine. At the Conference, information was introduced to the Committee that Section 407(b)(2) of the Federal Food, Drug, and Cosmetic Act (FDC Act) prohibits the sale



of oleomargarine or margarine in package sizes greater than one pound. The Liaison Committee requested clarification of this issue from both the U.S. Metric Board and the FDA.

Section 407(b)(2) of the FDC Act provides that "[n]o person shall sell, or offer for sale, colored oleomargarine or colored margarine unless...the net weight of the contents of any package sold in a retail establishment is one pound or less." 21 U.S.C. 347(b)(2).

It is FDA's opinion that any State regulation authorizing the sale of oleomargarine in packages in excess of one pound would be superseded by Section 407(b)(2) of the FDC Act, and any sale or offer for sale of such oleomargarine would constitute a violation of Section 407(b)(2).

Accordingly, to the extent that the Model State Regulation is interpreted as permitting the sale of 500-g packages of oleomargarine, such sales would be prohibited by section 407(b)(2) of the FDC Act.

The Committee is of the opinion that this portion of the FDC Act is archaic and unnecessary, and that margarine packagers ought to be able to market their product with the same freedom butter packagers presently have.

Therefore, the Committee will request the Liaison Committee to petition FDA to bring this issue before Congress in its annual review with Congress of needed legislation and legislative changes to the FDC Act. In the meantime, the Committee recommends adding the following statement as a footnote to Section 1.3:

Oleomargarine and margarine are not permitted in multiples of one pound, 500 grams, or multiples of 500 grams because Section 407(b)(2) of the Federal Food, Drug, and Cosmetic Act prohibits margarine and oleomargarine packaged in sizes greater than one pound.

The Committee would also like to alert weights and measures enforcement officials that there are products which are sold in refrigerated cases in supermarkets often beside margarine and often in 2-pound packages. These products are often labeled as "spread." They are not margarine in terms of the FDA standard defining margarine (at least 80% fat). These products are not restricted by the above mentioned section of the FDC Act.

(Item 204-2 was adopted.)

#### 204-3 SECTION 1.5. MEAT, POULTRY, AND SEAFOOD

With increasing appearance of convenience foods in the retail meat case, meats such as pork chops, veal, etc., are being prepared by the retail store with stuffing ready for cooking. Section 1.5. requires the labels of ready-to-cook, stuffed poultry products to indicate the total net weight of the poultry product and the minimum net weight of the poultry in the product. This requirement should be broadened so as to include stuffed meat as well as stuffed poultry.

Since it is possible for some stuffing mixtures to contain meat or poultry, the Committee also recommends clarifying language to indicate that the minimum weight statement apply only to the stuffed poultry or meat and not to the meat content, if any, of the stuffing mixture.

The Committee proposes amending the last paragraph of Section 1.5 as follows:

In the case of ready-to-cook, stuffed poultry or meat products, the label must show the total net weight of the stuffed poultry or meat product and the minimum net weight of the poultry or meat in the product excluding that meat or poultry which may be part of the stuffing.

(Item 204-3 was adopted.)

204-4      SECTIONS 1.6(b) AND 1.7(b) METRIC EQUIVALENTS TO INCH-POUND SIZES FOR FLUID MILK PRODUCTS AND OTHER MILK PRODUCTS

The Model State Regulation for the Method of Sale of Commodities permits packages to be put up either in inch-pound or metric sizes. Sections 1.6(b) and 1.7(b) specifically list metric equivalents to the inch-pound sizes permitted in subsections (a) of each section. No other section in the Model Regulation specifically lists metric equivalents to inch-pound sizes and no section lists inch-pound equivalents to metric sizes. Since it was the intent of the NCWM to permit for any product in the Model Regulation either metric or inch-pound sizes as the primary declaration (with inch-pound or metric equivalents also on the principal display panel if required or desired-- see voting key 203-1-2 and 204-1), the Committee recommends deleting Sections 1.6(b) and 1.7(b) and renumbering the remaining paragraph in each section as follows:

1.6. FLUID MILK PRODUCTS. -- All fluid milk products, including but not limited to milk, lowfat milk, skim milk, cultured milks, and cream shall be packaged for retail sale only in volumes per subsection 1.6(a) or subsection 1.6(b) ~~or (e):~~ Provided, that inch-pound sizes less than 1 gill and metric sizes less than 100 milliliters shall be permitted.

(a) Inch-Pound Volumes - 1 gill, 1/2 liquid pint, 10 fluid ounces, 1 liquid pint, 1 liquid quart, 1/2 gallon, 1 gallon, 1-1/2 gallons, 2 gallons, 2-1/2 gallons, or multiples of 1 gallon.

~~(b) Metric Volumes --- 118-milliliters, 236-milliliters, 296 milliliters, 473-milliliters, 946-milliliters, 1,89-liters, 3,78-liters, 5,67-liters, 7,56-liters, 9,45-liters, or multiples of 3,78-liters (effective January 1, 1982).~~

~~(e)~~ (b) Metric Volumes - 125 milliliters, 250 milliliters, 500 milliliters, 1 liter, or multiples of 1 liter (effective January 1, 1982).

1.7. OTHER MILK PRODUCTS. -- Cottage cheese, cottage cheese products, and other milk products that are solid, semi-solid, viscous, or a mixture of solid and liquid, as defined in the Pasteurized Milk Ordinance of the U.S. Public Health Service, as amended in 1965, shall be sold in terms of weight: Provided, that cottage cheese, cottage cheese products, sour cream, and yogurt shall be packaged for retail sale only in weights per subsection 1.7(a) or subsection 1.7(b) ~~or (e)~~: and Provided further, that multipack or single serving inch-pound sizes of 6 ounces or less shall be sold only in whole ounce increments, and that metric sizes of 200 grams or less shall be sold only in 25-gram increments.

(a) Inch-Pound Weights - 8, 12, 16, 24, 32, 64, 80, and 128 ounces avoirdupois.

~~(b) --Metric Weights ---226, 340, 453, 680, 907 grams; 1, 81, 2, 26, and 3.62 kilograms (effective January 1, 1982) --~~

~~(e)~~ (b) Metric Weights - 250, 375, 500, 750 grams; 1, 2, and 4 kilograms (effective January 1, 1982).

(Standard package sizes shall apply to low fat and dry curd cottage cheese products as of July 1, 1976.)

(Item 204-4 was adopted.)

#### 204-5 ICE CREAM AND FROZEN DESSERT COMBINATION FOODS

(This item was carried over from the 66th NCWM, 1981, in which it was assigned voting key 203-6.)

A variety of types of frozen dessert foods are being sold in combination with each other (ice cream, cookies, coatings, etc.) and are being labeled differently from packager to packager. In addition, the net contents declarations as presently expressed on the packages make compliance testing impossible. For example, an ice milk dessert in a cone with chocolate and nut topping is labeled "3 fl oz ice milk and 1 cone." Another example, an ice cream and cookie sandwich, is labeled "3 fl oz sandwich." A third example, another sandwich, is labeled "3 fl oz plus 2 wafers." The weight or other declaration of the wafer, cookies, cone, or topping is not made and it would be quite difficult to separate the ice cream, ice milk, etc. from the rest of the dessert in order to determine compliance with the 3 fl oz statement.

The Committee believes that the key to this problem lies in the definition of this type of product, believes that it is a combination food, and therefore that such products should be labeled by net weight of the total product. The Committee intends to find out by formal request to FDA whether that agency would agree with this interpretation. This item will be carried over until next year.

(Item 204-5 was adopted.)

Two issues relating to polyethylene products were considered by the Committee. They were: definitions of trade practice terminology; and, proposals to add net weight to the label of some or all consumer products.

#### Definitions of Terms

The Flexible Packaging Association alerted the Committee that Sections 2.12.1. and 2.12.5. are titled "SHEETING" whereas widespread industry terminology would define sheeting as product of 10 mils thickness or greater. "Film" is the term used to describe product less than 10 mils in thickness. Since the Committee had intended Sections 2.12.1. and 2.12.5. to refer to polyethylene product of thicknesses less than 10 mils, a change in heading to both Sections is proposed. This in turn requires retitling Section 2.12.2. FOOD WRAP AND FILM, since the term "film" occurs here. The individual packagers and the Flexible Packaging Association at the Interim Meeting Hearings saw no difficulty in the Committee dropping the words "AND FILM" from the title of Section 2.12.2.

#### Net Weight Labeling

Two proposals for extending the net weight requirements from polyethylene products not intended for the retail consumer (Section 2.12.5. and 2.12.6.) to consumer polyethylene products were discussed. One proposal recommended net weight requirements be added to Section 2.12.1 for sheeting. The second proposal requested net weight requirements be added to all consumer polyethylene products (Sections 2.12.1. through 2.12.4.). The Committee was persuaded by arguments provided by the Flexible Packaging Association that net weight requirements are quite pertinent to be added to Section 2.12.1 (since there is very little real difference between consumer and nonconsumer sheeting and film in the marketplace due to the sale of noncommercial product for do-it-yourself applications) but not reasonable for addition to Sections 2.12.2. through 2.12.4. These arguments are the following:

- o Weight may be misleading to the consumer in declarations on bags and food wrap since the heaviest product does not necessarily provide the best performance. For example, new linear low density polyethylene resins are as strong and perform in other respects as well as conventional polyethylene weighing 20% more.
- o There are several variables affecting the net weight of boxes of polyethylene bags; besides dimensions, thickness, and count, there is the weight of closure devices, for example.



- o The absence of a declared net weight does not prevent the use of weight as an enforcement screening device for bags and wrap. The unit weight of any polyethylene product can be determined and used to calculate an expected net weight for the package. Only those packages that fall short of the calculated weight need undergo more rigorous measurements of length, width, etc.

The Committee discussed the need to define how net weight would be obtained and declared for Sections 2.12.1, 2.12.5, and 2.12.6 (sheeting and film). Industry and weights and measures officials at the interim hearings agreed that Section 4.6.3. of NBS Voluntary Product Standard 17-69 should be the formula used to calculate the net weight that should appear on the label. Since Voluntary Product Standard 17-69 (VPS) is no longer maintained by the Department of Commerce, National Bureau of Standards, and has not been adopted yet by other standardization bodies, the committee recommends that the new weight calculation contained in the VPS be specifically described in the model regulation.

Therefore, the Committee proposes modifying Section 2.12 as follows:

2.12. POLYETHYLENE PRODUCTS. -- Consumer products offered and exposed for sale at retail shall be sold in terms of:

- 2.12.1. SHEETING AND FILM
  - (a) length and width
  - (b) area in square feet or square meters
  - (c) thickness
  - (d) weight
- 2.12.2. FOOD WRAP AND FILM.--
  - (a) length and width
  - (b) area in square feet or square meters
- 2.12.3. LAWN AND TRASH BAGS. --
  - (a) count
  - (b) dimensions
  - (c) thickness
- 2.12.4. FOOD AND SANDWICH BAGS. --
  - (a) count
  - (b) dimensions

Products not intended for the retail consumer shall be offered and exposed for sale in terms of:

- 2.12.5. SHEETING AND FILM.--
  - (a) length
  - (b) width
  - (c) thickness
  - (d) weight
- 2.12.6. BAGS. --
  - (a) count
  - (b) dimensions
  - (c) thickness
  - (d) weight

2.12.7. DECLARATION OF WEIGHT

The labeled statement of weight for polyethylene products under sections 2.12.1., 2.12.5., and 2.12.6. shall be not less than the weight calculated by using the following formula:

$W = T \times A \times 0.03613D$ , where

$W$  = net weight in pounds

$T$  = nominal thickness in inches

$A$  = nominal length in inches times nominal width in inches

$D$  = density in grams per cubic centimeter as determined by ASTM Standard D1505-68 "Standard Method of Test for Density of Plastics by the Density Gradient Technique" (or latest issue).

0.03613 is a factor for converting g/cm<sup>3</sup> to lb/in<sup>3</sup>.

(Item 204-6 was adopted.)

204-7 SECTION 2.16. PRECIOUS METALS

Although the methods of sale of precious metals may include many more measurements than just the determination of weight (carat value, type and quantity of additional materials combined with the precious metal, etc.), the Committee has taken up the issue of appropriate units and method of sale pertaining only to the weight determination of precious metals as a necessary first step in providing uniformity in this area. The Committee discussed a proposal to permit measurements or methods of sale only in troy units, but is persuaded that metric units must be permitted as a matter of national policy. In order to protect the seller, since the market value of precious metal commodities is expressed in troy units, it is proposed that a conversion chart to troy units must be prominently displayed if measurements are made in metric units. The Committee proposes the following section to be added to the Method of Sale of Commodities Regulation.

SECTION 2.16. PRECIOUS METALS

2.16.1. DEFINITIONS. --

2.16.1.1. PRECIOUS METALS. -- Gold, silver, platinum, or any item composed partly or completely of these metals or their alloys and in which the market value of the metal in the item is principally the gold, silver, or platinum component.

2.16.2. QUANTITY. -- The unit of measure and the method of sale of precious metals, if the price is based in part or wholly on a weight determination, shall be either troy weight or metric weight. When the measurement or method of sale is expressed in metric weight units, a conversion chart to troy units shall be prominently displayed so as to facilitate price comparison.

The conversion chart shall also display a table of troy weights indicating grains, pennyweights, and troy ounces.

The Committee would like to point out that the customary unit of measure for precious metals is troy weight rather than avoirdupois; therefore, the latter (avoirdupois) should not be permitted as a method of sale or unit of measure.

The Committee also points out that Section 4 of the Model Weights and Measures Law prescribes that commercial devices must meet Handbook 44 requirements. The Specifications and Tolerances Committee has addressed the issue of suitable equipment for weighing precious metals in prior years.

After publication of the agenda, the Committee received a proposal which included the following:

- o require a delivery ticket to include (among other identification) total weight of the item in troy units, the price per unit troy per karat value, and the total price.
- o require posting of acid etch colors associated with the determination of karat value or fineness.

The consideration of the appropriateness of this proposal or similar proposals could not be adequately evaluated by the Committee during the interim meeting or subsequently; therefore, the above proposal (requiring a delivery ticket and requiring color posting) will be carried over for the coming year.

(Item 204-7 was adopted.)

#### 204-8      POTTING AND TOP SOIL

Potting and top soils and soil amendments have been appearing in the marketplace labeled either by weight or by dry volume or both. There is no trade association representing manufacturers of these products; therefore, the Committee invited several individual packagers to share their views on appropriate labeling.

There are several materials used as bases to these products, among them: sand, peat, bark, soil, and several man-made materials. Their densities vary considerably from one another, and there is a large variation in their moisture content. The Committee is of the opinion that the appropriate net contents statement should be dry volume, (with or without net weight as the packager chooses). The Committee solicits the opinions and experience of the Conference membership and other interested parties during the coming year as to whether a method of sale should be recommended for this product. The Committee, therefore, recommends carrying this item over.

(Item 204-8 was adopted.)

205 MODEL REGULATION FOR THE VOLUNTARY REGISTRATION OF SERVICEPERSONS  
AND SERVICE AGENCIES FOR COMMERCIAL WEIGHING AND MEASURING DEVICES

205-1 SURVEY ON MODEL REGULATION

(This item was carried over from the 66th NCWM, 1981, in which it was assigned a voting key of 205-1.)

In its report of 1980, the Committee agreed to review the Model Regulation. The Committee sent out a questionnaire on this regulation in March 1981. The following report summarizes the results of that survey and other data. The Committee is not yet prepared to recommend changes to the model regulation, but intends to keep this issue on its agenda for further study. The Committee recommends that all Conference members study the following report and provide their observations and recommendations to the Committee before the next interim meeting.

Study of the Model State Regulation for the Voluntary Registration of Servicepersons and Service Agencies for Commercial Weighing and Measuring Devices, 1986, for the NCWM Committee on Laws and Regulations

by C. S. Brickenkamp\*

Introduction

The Model State Regulation for the Voluntary Registration of Servicepersons and Service Agencies for Commercial Weighing and Measuring Devices (hereafter called the Model Registration Regulation) was introduced by the Committee on Laws and Regulations in 1966 and adopted by the National Conference on Weights and Measures (NCWM) that same year. It was endorsed by the Scale Manufacturers Association and the National Scale Men's Association. The regulation has not been revised since that time. It is published as part of NBS Handbook 130 "Model State Laws and Regulations."

The Model Registration Regulation was designed for use by weights and measures jurisdictions to establish control over the installation, service, and repair of commercial weighing and measuring devices by private service firms. The Model Registration Regulation establishes a voluntary registration program that provides the privilege to registrants of placing new or repaired devices into service without first being tested by weights and measures regulatory personnel.

A proposed new Model Program for the Field Verification of Devices was introduced for study by the Committee on Laws and Regulations in 1980 (see Report of the 65th National Conference on Weights and Measures, 1980, p. 109). The proposed Model Program describes a policy that

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\* National Bureau of Standards Technical Advisor to Committee on Laws and Regulations.



would broaden the use of registered private service firms in routine commercial device testing and approval (see Report of the 66th National Conference on Weights and Measures, 1981, p. 107). Since there is overlap between the proposed Model Program and the existing Model Registration Regulation, the Committee on Laws and Regulations expressed the need to study the Model Registration Regulation in parallel with its study of the proposed Model Program.

The study explores such issues as the following:

- o Since State and local governments have a responsibility to optimize their resources on every level, are registration programs (such as the Model Registration Regulation or any other type in place at State level) perceived by the States to be resource beneficial in obtaining device compliance?
- o What is the status of the adoption of the Model Registration Regulation by the States?
- o What are the options for improving the provisions of the Model Registration Regulation?
- o Neither the Model Registration Regulation nor the Model Program for Field Verification of Devices provides clear guidance on optimal administration, management, and use of registration, registered agencies, and agency test results. As a result, a diversity of operations under the loose heading of "registration programs" and a diversity of implementation schemes of the Model Registration Regulation should be apparent among those States that have adopted it. An investigation of the various implementation schemes for registration in place today should provide guidance for improving the implementation and use of the Model Registration Regulation, the proposed Model Program for Field Verification of Devices, or any other registration program.

There were two main sources of data for this study: (1) a questionnaire sent out by the NCWM Committee on Laws and Regulations and (2) a collection of State laws and regulations maintained by the Office of Weights and Measures (OWM), National Bureau of Standards, on most, but not all, of the States. The conclusions of the study are based on a combination of the results of the questionnaire, study of the State laws and regulations, the author's knowledge, and discussions with experienced State and local regulatory officials.

### Questionnaire on Registration Programs

In March, 1981, a questionnaire was mailed out by the Chairman of the NCWM Committee on Laws and Regulations to the 50 State weights and measures directors, 21 major city and county weights and measures directors, the District of Columbia (DC), Puerto Rico (PR), and the Virgin Islands (VI) (Report of the 66th National Conference on Weights and Measures, 1981, p. 106). Local jurisdictions to which the questionnaire was sent were selected arbitrarily based on a mailing list of larger local jurisdictions used by the OWM. All 50 States, DC, and PR responded by mail. Although only 7 of the 21 local agencies responded by mail, a telephone followup confirmed that no local jurisdictions had registration programs different from that of its State except for New York City (which responded by mail). From files of State and territorial laws and regulations kept by the OWM and from information obtained by telephone, it was determined that the Virgin Islands does not yet have implementing regulations accompanying their weights and measures code. (VI did not respond to the mail questionnaire.) Therefore, a total of 54 responses (from the 50 States, DC, PR, VI, and New York City) have been tallied and reported in the next section. A detailed description of the questionnaire and responses is appended to this report.

### Summary of Questionnaire Results

Both mandatory and voluntary device service agency registration programs are in place in weights and measures jurisdictions (see Appendix, question 1), although a large proportion have no registration programs at all. Voluntary registration programs, such as the Model Registration Regulation, are those in which device repair persons and repair firms may voluntarily register with the weights and measures regulatory agency and, by registering, obtain the privileges of removing rejection tags and of placing new or repaired equipment into service until such time as an official examination can be made. Twenty out of 54 responding jurisdictions reported having a voluntary registration program. Mandatory registration programs are those that require all device repair persons or firms to be registered with the weights and measures jurisdiction in order to do business in that jurisdiction. Seventeen out of 54 jurisdictions reported a mandatory registration program. Seventeen jurisdictions reported no registration program.

The Model Registration Regulation is the oldest model regulation that has not been significantly revised since its endorsement by the National Conference on Weights and Measures. In the 16 years of its availability for use by the States, only 10 of 54 jurisdictions have adopted the Model Registration Regulation intact. Three more States reporting mandatory programs have adopted the Model Regulation verbatim except for references to "voluntary" and "voluntarily." However, the rate of adoption of this model regulation is not noticeably slower than for other model regulations. For example, it took nearly 60 years to achieve nationwide adoption by the States of Handbook 44.

### Adoption of Model Regulation

Number of States Adopting <sup>*</sup> 13		Number of Jurisdictions Not Adopting Model 41			
Voluntary	Mandatory	Voluntary	Mandatory	No Prog.	Other
10	3	10	14	16	1
<sup>*</sup> Includes 3 States that adopted the model regulation substantially but not entirely.					

The specific requirements, responsibilities, and privileges of device service firms are very different from jurisdiction to jurisdiction (even among those jurisdictions that have adopted the Model Registration Regulation). For example, of the 37 jurisdictions that report a registration program, 22 register both servicepersons and agencies; 12 register only the repair person; and 3 register only repair firms. (See the Appendix, question 3.) Of 37, 16 jurisdictions only require filling out a form (including payment of a fee for 11 of the 16); 14 require an oral and/or written test; and 12 require some kind of demonstration of capability (5 of these 12 also give oral or written tests). (See the Appendix, question 5.) Of 37, 13 jurisdictions require service agencies to possess specific types and amounts of testing standards; 23 only require that standards be "adequate" and/or certified, only one jurisdiction has no requirements. (See the Appendix, questions 6 and 8.)

There is even more variety in the administration of registration programs. For example, 9 jurisdictions do not classify service agencies according to device type, 28 of the 37 jurisdictions with registration programs classify service firms in categories ranging from simple "meter" and "scale" subdivisions to more complicated categorizations as to capacity of device or combination of services provided by the firm. (See the Appendix, question 2.) Even though the Model Registration Regulation permits reciprocity agreements between weights and measures jurisdictions, 9 of the 13 States that have fully adopted the model do not recognize another State's registration. This indicates the variety of administrative deviations in practice even among those States that have fully adopted the Model Registration Regulation. (See the Appendix, question 16.)

Management of these programs is also quite different from jurisdiction to jurisdiction. For example, of the 37 jurisdictions with registration programs, 8 jurisdictions use both the place-in-service reports issued by the service firm and the retest results of their own staff to review the quality of work of the particular repair firm, 22 use only the firm's place-in-service reports, and 7 use only the routine or random reinspection by their own staff. (See the Appendix, question 10.) Of



37, 20 jurisdictions do not accept reports of tests performed by service firms as official verification of device performance, while 17 do accept these reports as official. (See the Appendix, question 15.)

There is even diversity as to what constitutes a violation and the extent of enforcement of these types of regulations. Of 37, failure to have equipment calibrated constituted a violation in 8 jurisdictions, a history of violations is required in 11; poor quality of workmanship was specifically mentioned in 20 jurisdictions; and repaired or installed devices not meeting technical specifications was cited by 9 jurisdictions as constituting a violation (there was considerable overlap among responses). (See the Appendix, question 17.) Of 37, 23 jurisdictions have suspended or withdrawn registration, whereas 14 have never done so. (See the Appendix, question 18.) Of 37 jurisdictions with registration programs, 14 have provisions for fines for failure to comply with the regulation and 23 do not. (See the Appendix, question 19.)

When viewing the results of the questionnaire, however, general correlations can be seen between the voluntary or mandatory character of a program and its implementation. All jurisdictions that reported a performance requirement for registration operate voluntary registration programs. In contrast, a majority of those jurisdictions reporting no requirements for registration other than completion of a form (and, perhaps, payment of a fee) operate mandatory registration programs (see Appendix, question 5). A majority of those jurisdictions reporting specific testing equipment requirements (including calibration and examination requirements) operate voluntary registration programs (Appendix, questions 6 and 8); whereas a majority of those reporting no minimum technician qualification requirements operate mandatory programs (Appendix, question 7).

Mandatory registration jurisdictions represent the majority of those that reported having a fine schedule for failure to comply with registration requirements (Appendix, question 19); however, they also represent the majority of those who reported never having suspended or withdrawn registration (Appendix, question 18) and of those who reported no savings resulting from a registration program (Appendix, question 20).

#### Need for Regulations and What They Accomplish

The differences that this survey has revealed between mandatory and voluntary registration programs having been summarized the advantages and disadvantages of each are worth detailing. Voluntary registration programs do not identify all device repair services available in a jurisdiction. Since good device service is perceived by many weights and measures agencies as absolutely essential for maintaining device accuracy, some type of accounting and control of device service agencies and/or agents is also seen as quite important. Voluntary registration does not accomplish this. Mandatory registration programs do keep track of all device servicepersons operating within a jurisdiction.



Because voluntary programs are perceived as just that - voluntary, there may be a reluctance on the part of program administrators to require much from those voluntarily registering. However, it is just this aspect of the program that should help to maintain quality standards in those registered. The device agency or agent applies for registration voluntarily, but the weights and measures administrator must be selective about whom he registers. Those people or agencies registered will, in effect, be extensions of his own staff, having the power to place repaired equipment into service without that equipment having to be tested by a weights and measures official before use. Such extensions of his staff must be selected carefully. It may be that the importance of such selectivity is not well understood in all jurisdictions having voluntary programs.

In contrast, mandatory programs, because they require registration of all device service agents or agencies, may not politically be capable of great "selectivity" in registering agencies (see Questions 5, 6, and 7). One weights and measures official expressed a perception which may be shared by others: "After all, I would be taking his livelihood away if I withdrew registration."

A few States have bonding requirements in addition to mandatory registration (see question 7 in the Appendix). The Committee questionnaire did not investigate how a device owner went about a claim on an agency's bond, nor whether any claims had been made in the recent past. (Bonding is a type of insurance in which a percentage of the total bond is paid as an annual premium to a bonding company. The bonding amounts that are used by those States reporting do not exceed \$1000. Premiums of one to five percent are commonly charged.) For a bond of \$1000, it is unlikely that a bond company can afford to investigate the capability of the service technician being bonded, so it is not realistic to expect that bonding companies will weed out poor performers unless claims on the bonds are very easy to substantiate.

The belief appears to be widely held that letting registered repair firms place equipment into service without weights and measures official inspection should be a last resort, and only when weights and measures budgets and manpower have been reduced to the barest minimum. It is true that organizing and maintaining an effective, efficient device repair registration program is not easy, that it requires careful planning, well-documented operated procedures, and time-consuming management, but it is likely to be very satisfactory in any jurisdiction looking for greater efficiencies in operations and willing to manage some device testing rather than actually perform device testing. The importance of keeping easily retrievable records on service agent work, on following up to determine the quality of the work, and of following through on hearings necessary to prove poor quality work deserving withdrawal of registration, must all be stressed.

### Conclusions

For jurisdictions with voluntary programs, it is important to keep in mind the selectivity that should be maintained in such programs, and the necessity of gathering and maintaining performance data on service agents in order to decide on whether to register or terminate registration.

For jurisdictions with either type of program, it should be noted that requirements such as oral, written, or demonstration tests are fine for licensing servicepersons, but only a review of past performance can provide data to decide whether an agency or serviceperson can do the quality of work required for placing new or repaired devices into service. Of course, such performance can be judged only by field inspection and monitoring. Witness-of-test arrangements (see Appendix, question 11) augment field monitoring since it allows the weights and measures official to observe for himself or herself the capability of the service technician to not only repair but also test the device. Witness-of-test arrangements provide logical first steps to deciding whether a service agent can place a device into service without immediate inspection and test by a weights and measures official. The importance of this process cannot be overstressed.

The responses to the last question on the National Conference on Weights and Measures questionnaire can be used to infer whether weights and measures regulatory agencies perceive registration programs as necessary or beneficial in obtaining device compliance. (See the Appendix, question 20). Although a clear majority of jurisdictions (25 out of 37) believes that registration of servicepersons and agencies saved government inspection time, there was provided only one documented case to prove this belief. Twelve jurisdictions with registration programs reported either that registration did not save government inspection time or that they were undecided. The latter responses indicate the need for further work to improve existing regulations, to improve the administration of the regulations, or to revoke existing regulations as unnecessary.

### Presentation of Issues

Based on the results of this questionnaire and other analysis as presented in this study, it may be reasonable to conclude that the Model Registration Regulation is basically sound. Several items should be considered by the Committee for further study in order to improve implementation and use of the model:

- (1) Addition of minimum equipment requirements for registration according to what is considered necessary to service or install a particular class of equipment;
- (2) Addition of qualifications of individual or service agency;
- (3) Addition of a requirement that all necessary testing equipment and standards be available and used at the installation

of repair site (some jurisdictions reported that repair firms that had adequate equipment did not always bring that equipment to each repair site);

- (4) Addition of more specific information to be included on the place-in-service reports, including type of test and equipment used to determine compliance of commercial device;
- (5) Addition of requirement that registration be based on quality of past performance and that maintenance of registration be based on both review of place-in-service reports and on reinspection (even if only occasionally);
- (6) Addition of specifications of what action, or failure of action, constitutes a violation of the regulation; and
- (7) Addition of a requirement that the registration certificate automatically expire at the end of the biennium for standards calibration and that the certificate will be reissued only if all requirements of the weights and measures agency are met. (This addition was suggested by Florida in order to make removal from the registration list easier; otherwise, a public hearing would be required.)

Some of these additions can be made by the jurisdiction and incorporated as part of its operation and policy manuals; others (such as items 6 and 7) will probably have to be incorporated by regulation.

For jurisdictions with mandatory registration programs, the results of this study indicate such jurisdictions may wish to install some type of two-stage registration, combining the best qualities of the mandatory and voluntary programs. The first stage would license and account for all device repair firms and the second stage registrants would be given the privileges of removing rejection tags and placing rejected equipment in service (etc.). The second-stage registration would be available to a selected few agencies or servicepersons whose performance justified such privilege (based upon a review of, say, at least one year's service record).

Finally, some comments about the present NCWM Model Registration Regulation and its relationship to the proposed Model Program for Field Verification of Devices are in order. It is not a great step from permitting service agencies to put equipment into service after installation or repair to permitting them to put equipment into service after routine maintenance (without repair). It may be asked, though, how much device inspection and testing is actually done by service agencies or how much they are presently capable of doing without conflict of interest. Let us examine the responses to Question 15 of the questionnaire. The question asked whether weights and measures officials accepted reports of tests of service agencies as official verification of device performance; the requirements for these



agencies; and what inspections and tests service agencies performed (e.g., comparison of devices with standards such as specifications, tolerances, user requirements, general code requirements). It is somewhat surprising that only three jurisdictions that accept service reports as official had rather limited expectations of what such agencies can reasonably be expected to do: one expected only tolerance requirements to be applied; one, no user requirements; and one, no specifications. Twenty additional jurisdictions reported that service agency reports were not considered official at all, perhaps because they also had limited expectations.

In view of this apparent disagreement among jurisdictions, the objectives of a registration program must be defined, and the stage of development of any existing program must be determined.

Registration programs were originally put into place to eliminate fly-by-night repair firms and, thus, to protect device owners (17th NCWM, 1939). Later, registration programs were seen as a way to demand better performance from existing repair firms (by bonding, for example, see 33rd NCWM, 1946). Next, the voluntary registration program gave the privilege of placing equipment into service (without weights and measures officials actually present) to qualified agencies (51st NCWM, 1966). This was the first step towards a cooperative arrangement between weights and measures jurisdictions and service agencies and beyond mere protection of the device owner.

Now an extension of the cooperation between weights and measures and service agencies is being proposed that would permit official testing by qualified service agencies and would supplement or augment weights and measures regulatory control. It is the opinion of the author that adequate management and control over service agencies given these privileges is extremely important. The NCWM must provide more guidance and recommendations to weights and measures officials as to whether and as to how to implement, manage and control such programs if they are to serve weights and measures goals of equity and uniformity. This is the task that the Committee on Laws and Regulations has before it.

This report has been written to provide support to the Laws and Regulations Committee and to the NCWM for their decision making.

(Item 305-1 was adopted.)



### Appendix

Of the 50 States, District of Columbia, Puerto Rico, and the Virgin Islands, only one jurisdiction failed to respond (Virgin Islands) to the questionnaire. From files of State and territorial laws and regulations kept by the Office of Weights and Measures (OWM), and from information obtained by telephone, it was determined that the Virgin Islands does not yet have implementing regulations accompanying their weights and measures code, but their basic code permits the weights and measures director to set rules in this area. Two responses were received from Puerto Rico but there were some inconsistencies between them, so judgments had to be made as to which response to record for Puerto Rico. Responses were also received by mail from seven of 21 municipal and county jurisdictions, with a telephone follow-up confirming the fact that those jurisdictions that did not respond by mail also did not have registration programs separate from those of their States. Only New York City was included in the final tally because this city's registration requirements were the only ones of any city or county that reported at variance with the State. Thus a tally of 54 jurisdictions is recorded: 50 States, District of Columbia, Puerto Rico, Virgin Islands, and New York City.

The questionnaire was also mailed to the following local weights and measures jurisdictions: Bucks County PA, Indianapolis IN, Akron OH, Oakland CA, Omaha NE, Philadelphia PA, Middlesex County NJ, Kansas City KS, St. Louis MO, San Jose CA, Minneapolis MN, Agawam MA, Dade County FL, Chicago IL, Birmingham AL, Dallas TX, Ventura County CA, Los Angeles County CA, Cincinnati OH, and Seattle WA.

A copy of the questionnaire appears on the following pages.

STATE, COUNTY, OR CITY \_\_\_\_\_

NATIONAL CONFERENCE ON WEIGHTS AND MEASURES  
COMMITTEE ON LAWS AND REGULATIONS

QUESTIONNAIRE ON

MODEL STATE REGULATION FOR THE VOLUNTARY REGISTRATION  
OF SERVICEPERSONS AND SERVICE AGENCIES FOR COMMERCIAL  
WEIGHING AND MEASURING DEVICES  
1966

1. Background

The Regulation covering the registration of servicepersons and service agencies was developed and adopted by the National Conference on Weights and Measures in 1966. It was designed to promote uniformity among those jurisdictions that provided for or were contemplating the establishment of some type of control over the servicing of commercial weighing and measuring devices. It offers to a serviceperson or to a service agency the opportunity to register which carries with it the privilege of restoring devices to service and of placing new or used devices in service.

Two unique features of the registration plan are its voluntary nature and the provision for reciprocity. Registration is not required; however, the privileges gained make it attractive. Also, in order to provide maximum effectiveness of the program and to reduce to a minimum legal obstacles to service across State lines, provision is made for reciprocity among States having similar voluntary registration policies both in recognition of registered servicemen and agencies and of certification of standards and testing equipment.

The Laws and Regulations Committee of the National Conference on Weights and Measures is studying this regulation and its implementation in the U.S. This survey has been designed to help the Committee focus on the issues, strengths, and weaknesses of this regulation in today's Weights and Measures.

Please add comments not only on what your jurisdiction currently has in force but also what needs to be done (in comments area).

Please return by May 1, 1981.

Comments

1. Is registration of service persons or service agencies

- a. voluntary.....[ ]
- b. mandatory.....[ ]
- c. no registration program.....[ ]
- d. other (explain):

2. Are there different classes of service agencies according to their capability to repair different devices (liquid meters vs. small capacity scales, etc.)?
- a. No.....[ ]
- b. Yes; if so, explain.....[ ]
3. Is registration of
- a. service agencies and service persons.....[ ]
- b. only service agencies.....[ ]
- c. only service persons.....[ ]
4. If registration is on service agency, is list of service technicians required?
- a. No.....[ ]
- b. Yes.....[ ]
- and periodically updated?
- a. No.....[ ]
- b. Yes.....[ ]
- how often?
5. What are requirements for registration?
- a. oral test
- No.....[ ]
- Yes (if yes, on what subjects).....[ ]
- c. demonstration test
- No.....[ ]
- Yes (if yes, on what subjects).....[ ]
- d. completion of form and/or payment of fee
- No.....[ ]
- Yes.....[ ]
6. Do you have minimum equipment standards for service agencies?
- a. No.....[ ]
- b. Yes (if yes, what are they in each area?).....[ ]

7. What constitutes minimum qualifications of service personnel?
8. Is all service agency equipment examined and tested by State laboratory?
  - a. Yes.....[ ]
  - b. No, if not, what constitutes certified standards and testing equipment for a service agency?.....[ ]
9. What privileges do registered agency/servicepersons have?
  - a. remove rejection tags and place in service rejected.....[ ]
  - b. place new equipment in service.....[ ]
  - c. other (explain).....[ ]
10. What reports or procedures are used to review the quality of work done by the agency?
  - a. place in service report.....[ ]
  - b. other (explain).....[ ]
11. Do you maintain witness of test arrangements with servicepersons?
  - a. No.....[ ]
  - b. Yes.....[ ]
12. Do you have guidelines or requirements as to how soon newly repaired or installed equipment is inspected by an enforcement official after a registered service agency installs or repairs a device?
  - a. No.....[ ]
  - b. Yes (if yes, what are requirements or guidelines?).....[ ]



Comments

13. Does the weights and measures jurisdiction use a variable frequency of inspection program?
- a. No.....[ ]
- b. Yes (if yes, please send copy of program or describe.....[ ]

14. Does this variable frequency program operate differently for newly repaired or installed equipment than for existing in-service equipment?
- a. No.....[ ]
- b. Yes.....[ ]

15. Does your jurisdiction accept reports of tests performed by service agencies as official verification of device performance?
- a. No.....[ ]
- b. Yes.....[ ]

If yes, what are requirements for these agencies (enclose copy of requirements, if necessary) and what inspections and tests do service agencies perform?

specifications.....[ ]

tolerances.....[ ]

user requirements.....[ ]

general code requirements.....[ ]

16. Is registration reciprocal with other States?
- a. No.....[ ]
- b. Yes.....[ ]

If yes, which other States?

How is reciprocity instituted (memo of agreement, etc.); maintained (copy of reports, etc.)?

17. What constitutes grounds for suspense or withdrawal of Registration Certificate?

18. Has your jurisdiction ever suspended or withdrawn  
a Certificate of Registration?
- a. No.....[ ]  
b. Yes (if yes, for what reasons?).....[ ]
19. Are there provisions for fines for failure to comply with  
regulation?
- a. No.....[ ]  
b. Yes (if yes, what are they?).....[ ]
20. Has a registration of servicepersons saved government  
inspection time?
- a. No.....[ ]  
b. Yes (if yes, approximately how much?).....[ ]

# Committee on Laws and Regulations Questionnaire

## QUESTION 1 - Is registration of servicepersons or service agencies

Voluntary?	20 jurisdictions
Mandatory?	17 jurisdictions
No registration?	16 jurisdictions
Other?	1 jurisdiction



Figure 1. Type of Registration Program - Mandatory or Voluntary

Of the 16 jurisdictions that reported no registration program, five also responded that the adoption of some type of program was being considered. Only one jurisdiction reported a device repair oversight program different from registration, either voluntary or mandatory. This State authority reported the State had the power to refuse authorization to remove repair orders; this power was described as a "negative-option clause." It is possible that other jurisdictions that reported no registration programs might also have (and have used) this authority.

Based on OWM's collection of State laws and regulations, it was determined that 10 of the 20 jurisdictions that reported a voluntary registration program have fully adopted the NCWM Model Regulation. Four more have adopted the model in part and six use the model as a guideline. Of these last six, one State does not have specific registration requirements in rule or regulation, but nonetheless carries out a voluntary registration program.

It is interesting to note that three States reporting mandatory registration programs have fully adopted the NCWM model regulation except for those places where the words "voluntary" or "voluntarily" appear in the model.

Thus, it can be said that 13 States have fully adopted the NCWM model regulation. This tally does not correspond to the number of States reported in Handbook 130 to have fully adopted the model. However, the count reported in the present study is more accurate because it is based on a paragraph by paragraph review of the regulations on file for each State, District of Columbia, Puerto Rico, and Virgin Islands.

In contrast, the tally reported in Handbook 130 is the result of a telephone request to each jurisdiction as to whether its laws and regulations are based completely, only in part, etc., upon NCWM models. The tally in the next issue of Handbook 130 for this model regulation will be adjusted to indicate the results of this study. The results from this question are:

TYPES OF REGISTRATION PROGRAMS AND  
EXTENT OF USE OF NCWM MODEL

VOLUNTARY			
Model Fully Adopted	Adopted Model in Part	Model Used as Guideline	
FL MT		AL	
ID NE	ND	AZ	
KY SC	TX	HI	
MN SD	WY	KS	
MO UT	PR	VT	
		WI	no reg
MANDATORY			
Model Fully Adopted (Except for "Vol")	Adopted Model in Part	Model Used as Guideline	Model Not Used
AR		CA MS	CT
NH		CO NV	IA
TN		GA NM	NJ
		IL NC	NYC
		ME OK	
NO REGISTRATION PROGRAM			
	AK	MD	OH
	DE	MA	PA
	IN	MI	RI
	LA	NY	VA
			WA
			WV
			DC
			VI
OTHER TYPE OF CONTROL			
OR (See text)			



QUESTION 2 - Are there different classes of service agencies according to their capability to repair different devices (liquid meters vs. small capacity scales, etc.)?

<u>Yes</u>	<u>No</u>
AL - scales - up to 400 lb	CA
- large capacity	CT
AZ - no information	MS
AR - wholesale	MO
retail	NH
large capacity	ND
small capacity	SC
CO - small capacity (up to 2000 lb)	TN
large capacity (over 2000 lb)	NYC
FL - classed according to equipment & ability, e.g.:	
all scales	
up to 5000 lb	
etc.	
GA - 6 classes of scales	
LPG meters	
moisture meters	
HI - liquid measuring	
devices - rack	
- retail	
- drum fillers	
scales - heavy capacity	
- small capacity	
ID - application & identification card describes	
single or multiple service qualifications	
IL - scales - large capacity	
- small capacity	
liquid measuring devices	
moisture meters	
IA - no information	
KS - scales - large capacity	
- small capacity	
KY - meters	
scales - large capacity	
- small capacity	
ME - no information	
MN - meters (truck transfer)	
LPG meters	
gas pumps	
linear devices	
scales - up to 1000 lb	
- heavy duty	

(continued)

Tally (continued)

	<u>Yes</u>	<u>No</u>
MT - according to capabilities and test equipment		
NE - small scale		
large and small scale		
gas pump only		
gas pump and refined fuel meter		
gas pump, refined fuel meter & propane meter		
(any other combination of these)		
railroad track scale		
NV - scales		
meters		
miscellaneous equipment		
NJ - scales		
meters		
etc.		
NM - scales		
meters		
NC - scales		
liquid measuring devices		
OK - large capacity		
small capacity		
SD - according to capabilities and amount and		
type of calibration equipment		
TX - according to type and capacity of device		
UT - no information		
VT - according to device		
WI - scales		
liquid		
farm bulk tanks		
etc.		
WY - large capacity scales		
small and large capacity scales		
small capacity scales and meters		
gas pumps		
other measuring devices		
PR - weighing		
measuring		
<u>28</u>		<u>9</u>

Only the 37 jurisdictions that answered that they had a voluntary or mandatory program could logically respond to this question. Not every jurisdiction that responded affirmatively to this question explained the classification scheme that it used in its registration program.

Responses to this question indicate the breadth of possibilities in keeping track of the myriad capabilities of service agencies in an individual State. Responses may in some cases indicate the concentration of scale repair service agencies as opposed to other types of repair services available.

QUESTION 3 - Is registration of

<u>Servicepersons and agencies?</u>	<u>Agencies only?</u>	<u>Persons only?</u>
AZ	CO	AL
CA	WI	AR
CT	NYC	KS
FL		KY
GA		MN
HI		MS
ID		MO
IL		NC
IA		OK
ME		SC
MT		TX
NE		PR
NV		
NH		
NJ		
NM		
ND		
SD		
TN		
UT		
VT		
WY		
<u>22</u>	<u>3</u>	<u>12</u>

Again, only the 37 jurisdictions reporting a registration program are tallied. The preferred method seems to be keeping track of both service agencies and servicepersons to monitor both individual workmanship and company policy and equipment.

It is interesting to note that five of the jurisdictions that have adopted regulations fully in line with the NCWM Model Registration Regulation (AR, KY, MN, MO, SC) report registration programs of servicepersons only; whereas, the model regulation is written so as to accept registration of individuals and agencies.

QUESTION 4 - If registration is of a service agency, is list of service technicians required? and how often updated?

This question was intended to determine if those jurisdictions that registered agencies only (CO, WI, NYC in the questionnaire) also controlled in some manner the service persons by reference to their agencies. Most jurisdictions having programs registering both persons and agencies also answered this question.

<u>Yes (how often updated?)</u>	<u>No</u>
CA (annually, or as new technicians added)	CO
CT (when changes occur)	WI (every two years)
GA (every 6 months)	FL
HI (annually)	MT
ID (annually)	NH (periodically updated)
	<u>5</u>
IL (annually)	
IA (annually)	
ME (annually)	
NE (annually from date of registration)	
NV (annually)	<u>Did not say</u>
NJ (not periodically updated)	
NM (annually from date of registration or when changes occur)	ND (every two years)
SD (annually)	VT (annually)
TN (every two years)	<u>AZ</u>
UT (annually or by request)	<u>3</u>
WY (every two-three years)	
NYC (annually)	

17

Of the three jurisdictions that registered only agencies (see Question 6), only one required a list of service persons (NYC). Neither Colorado nor Wisconsin requires such lists. Wisconsin updates those lists voluntarily supplied on a two year basis.

Because of the ambiguous wording of the question, most of those States that reported a registration system of both agencies and persons also answered this question. Predictably, in all but three jurisdictions, these States indicated that they did keep track of which service persons worked for what company. Of the 22 jurisdictions registering agencies and service technicians (see Question 3), 16 reported that they required records on service technicians as part of records on service agencies, three (FL, MT, NH) reported that they did not require lists (but one of the three updates such lists if voluntarily supplied), and three more did not answer this question with a specific yes or no (AZ, ND, VT).

Of the three that did not answer whether lists of servicepersons were required with each agency registration, two of these jurisdictions responded to the second part of this question, namely, that registration was updated either annually (Vermont) or every two years (North Dakota).

Eleven of the jurisdictions that keep records on service technicians with each agency require annual updating; one jurisdiction adds that to an annual updating requirement, requests for changes to a list by repair firms will be added to their records at any time; one adds to annual reporting a requirement that all new technicians must be reported as they are hired; and, one adds "when any changes occur."

One State (CT) requires reporting whenever changes occur; one (GA) requires six-month updates; one (TN) requires updates every two years,



one (WY) every two to three years, and one (NJ) responded that their lists were not periodically updated. The predominant registration scheme appears to be a requirement that each registered agency to provide a list of its service technicians and update that list annually.

The model regulation gives no guidance as to what should be done (if anything) to keep track of servicepersons' affiliations with registered service agencies.

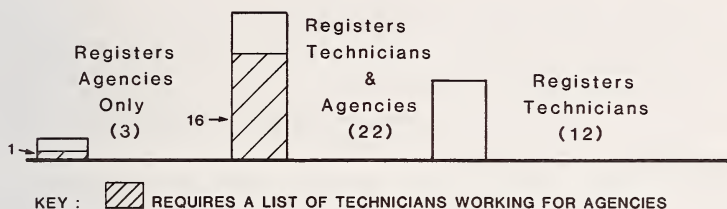


Figure 2. Type of Registration Program--Who or What is Registered

#### QUESTION 5 - What are requirements for registration?

<u>Complete form</u> <u>or fee</u>	<u>Oral test</u>	<u>Written test</u>	<u>Demonstration</u>
AZ		AZ	AL (workmanship)
AR(no fee)	AR(H-44, AR regs)		
CA			
CO	CO(H-44, scale knowledge)		
CT			
FL(no fee)			FL(everyday quality of repair)
GA		GA(State L&R, H-44)	GA(LPGas)
HI		HI(Weights & Measures L&R)	HI(retests within 20 days of installation or repair)
	ID(interview)		
IL		IL(IL L&R,H-44)	
IA		IA(IA L&R, H-44)	
KS(no fee)			IA(no further information)
KY			

(continued)

Tally (continued)

<u>Complete form or fee</u>	<u>Oral test</u>	<u>Written test</u>	<u>Demonstration</u>
ME			
MN	MN(on plac- ing in service authority)	MN(MN L&R H-44 & H-112)	MN(on some candidates)
MS		MO(MO L&R, H-44)	
MT			MT(actual repair to meet require- ments)
NE		[NE(considering one)]	NE(reinspect work)
NV(no fee)			
NH			
NJ	NJ(scope of experience)	NJ(State Statutes)	NJ(equipment, repairs, adjustments, and installation)
NM			
NC			NC(actual work must be acceptable)
			ND(must show equip- ment & calibration certificate)
OK			
SC(no fee)		SC(H44 for scale repairmen only)	
SD			
TN			
TX			TX(monitor work)
UT			
VT		VT(starting this year)	
WI(no fee)			
WY(no fee)			
PR	PR(devices to be repaired)		
NYC			
33(7 no fee)	6	10	12

KEY: L&R: laws and regulations

As can be seen in the tally above, the predominant requirement for registration is completion of form and/or payment of a fee. Only 33 of the 37 jurisdictions reporting a registration program reported requiring a form or fee. It is possible this may have been an oversight or else may mean that registration can take place without the applicant actually filling out the form. In any event, it may be

presumed that all 37 jurisdictions that have registration programs also keep records or forms on their registrants. Of the 37, 16 jurisdictions reported no further requirements for registration.

Only six jurisdictions give an oral examination, (and one of these is described as an interview rather than oral test). There was no consensus of subject matter to be included in oral tests. Subjects include Handbook 44, laws and regulations, device knowledge and scope of experience.

Ten jurisdictions give written exams; one gives a test based on Handbook 44, Handbook 112, and State laws and regulations; four on Handbook 44 and State laws and regulations; one on State laws only; one on Handbook 44 only (and that only for scale technicians); one on weights and measures laws and regulations; and two do not give any details about the examination content. One more State reported that consideration was being given to administering a written test.

Although 12 jurisdictions responded that they gave demonstration tests, seven of these 12 clarified their response as meaning that a demonstration test was a review of an agency's or technician's quality of workmanship. This is not, however, a special test in the sense an oral or written test might be considered special. More will be said about this later.

Of the remaining five of these 12 jurisdictions that may give demonstration tests of the type envisioned by the question, one gave a test for LP Gas device technicians; one gave a test "on some candidates"; one gave a test on "equipment, repairs, adjustment, and installation" (although this too might be a check on quality of the technician's routine workmanship); one considered a demonstration of having the proper equipment and calibration certificate as a demonstration test (therefore, this response was eliminated for demonstration test count); and, one supplied no further information.

A summary of responses to this question appears in Figure 3.

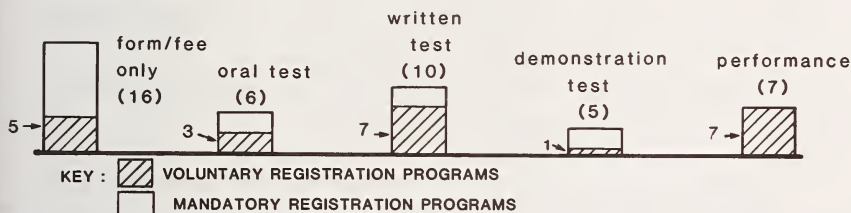


Figure 3. Registration Requirements

The majority of jurisdictions that require only a form and/or fee are those conducting mandatory registration programs. All of those jurisdictions reporting a performance type of requirement had voluntary programs.

QUESTION 6 - Do you have minimum equipment standards for service agencies?

<u>No</u>	<u>Yes</u> (What are minimum standards?)
CA	AL - Annual calibration of sufficient weights to
MS	test scales to 400 lb capacity
MO	AZ - Annual calibration and weights and measures
NV	sufficient to test types of device registered
NH	to service
SC	AR - current calibration
TN	CO - weights equal to 10 percent of scale capacity,
	certified annually
VT	CT - appropriate test measures and weights for
WI	service rendered
PR	FL - appropriate test measures and weights for
NYC	service rendered
	GA - proof of certified equipment
	HI - possession of, or available for use, weights
	and measures standards and testing equipment
	appropriate in design, adequate in amount,
	and currently certified.
	ID - appropriate standards and 10 000 lb for large
	capacity scales
	IL - 10 000 lb min; 30 000 lb for vehicle or larger
	scales
	IA - annually sealed test weights; adequate
	testing equipment
	KS - calibrated test weights
	KY - large capacity scales - 10 000 lb of test weights
	minimum
	small capacity scales - 30-lb test weight kit
	minimum
	meter mechanics - 5-gal test measure minimum
	ME - adequate equipment
	MN - pumps - 5 gal test measure
	scales - weights to 1/4 capacity of scale
	(20 000 lb max)
	meters - 100-gal prover
	LPG meters - 100-gal prover
	linear devices - appropriate test tape

(continued)



Tally (continued)

No

Yes

- MT - heavy duty scales - 10,000 lb certified test weights  
small capacity scales - 30-lb kit, 500-lb of 50-lb weights  
retail pumps - 5-gal measure  
meters - 100-gal prover
- NE - all necessary testing equipment and standards
- NJ - appropriate test equipment
- NM - scales above 2000-lb or 100-kg capacity - test weights to capacity, up to 10 000-lb maximum  
meters with capacity greater than 20 gal or 75L/min - prover of capacity to receive test draft as specified in Handbook 44; otherwise appropriate calibrated equipment and standards
- NC - scales - necessary weights  
petroleum devices - 5-gal and 1-gal test measure and other equipment as may be necessary
- ND - adequate weights and testing equipment
- OK - adequate weights with proof of calibration every 2 years
- SD - scales up to 10 000-lb capacity - minimum of 3000lb  
refined fuel pumps - 5 gal  
small capacity scales - "appropriate...such as 31-lb kit"  
scales with capacity of 10 000 lb or greater - 10 000-lb weights  
vehicle scales - 10 000-lb weights, with test unit gross weight at least 20 000-lb  
refined fuel meters - 100-gal prover minimum  
LPG - 55 gal min
- TX - certified and examined equipment plus test weight requirements
- UT - meters and dairy tanks - certified volumetric provers  
small capacity scales - certified weights and weight kits  
large capacity scales - certified weights up to 10 000 lb
- WY - "we like to have 10 000 lb of test weights for large capacity"; must have recent calibration

11

26

Only 11 of the 37 jurisdictions with registration programs responded that they did not have minimum equipment standards for service agents. However, upon examination of the responses of the remaining 26 jurisdictions, 13 of those that responded that they had minimum equipment

requirements said the requirements consisted of "adequate" or "sufficient" equipment and certified standards.

Of the remaining 13 jurisdictions, five jurisdictions had requirements for weighing equipment only.

Review of the actual regulations of the 11 jurisdictions that said they had no minimum equipment standards indicates that seven jurisdictions do indeed require certified weights and provers (MO, NH, SC, TN, VT, WI, PR). In addition, the responses to question 8 indicate that, of the remaining four jurisdictions (of the 11 answering "no" to question 6), MS, NV, and NYC do require certification and laboratory testing of repair form standards. Therefore, only one State is tallied as having no minimum equipment requirements. Therefore, Figure 4 indicates that 23 jurisdictions have no specific minimum requirements other than "adequacy" and certification.

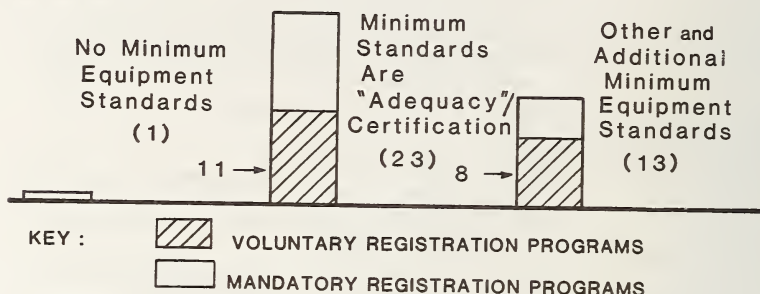


Figure 4. Equipment Requirements

The answers to this question may indicate the need to further specify minimum equipment standards for repair firms and technicians in the model regulation. In fact, six of the 14 jurisdictions that have fully adopted the model regulation have already added specific minimum equipment requirements in their program.

QUESTION 7 - What constitutes minimum qualifications of service personnel?

<u>None</u>	<u>Minimum Qualifications</u>
CA	AL - factory training or one year under direction of registered personnel
CO(register firm, not personnel)	AZ - 18 years old, 70 percent score on test, sufficient and appropriate, calibrated standards
FL(agency held responsible)	AR - pass oral test, show evidence of current certification of standards
HI	CT - by application, performance, experience
MS	GA - bond and proof of certified equipment
NE	ID - adequate background, experience, or work under qualified registered personnel
NV	IL - knowledge of field in which he is registered
NH	IA - bond
ND	KS - training with company (such as Toledo, Howe-Richardson or Fairbanks)
SD	KY - references
UT	ME - on-the-job or factory training
WI	MN - must complete written test and possess test equipment and copies of laws and regulations
TX	MO - prior training in area of work
	MT - experience and test equipment
	NJ - certificate of training and/or competency test
	NM - evidence or reference as to qualifications (upon request); bonded, competent work
	NC - one year's experience in equipment repair
	OK - prior training and references
	SC - written test on Handbook 44 for scale repair - otherwise no minimum (form asks for references)
	TN - prior experience and possession of approved equipment
	VT - starting written exam this year
	WY - 3 to 4 letters of recommendation
	PR - mechanical experience, knowledge of specifications and tolerances
	NYC- 21 years old, U.S. citizenship or declaration of intention to become citizen

13                      24

Of 37 jurisdictions with registration programs, 24 responded that their programs set minimum criteria for servicepersons. These criteria ranged from minimum age, U.S. citizenship, bonding, letters of recommendation, and references to prior training or apprenticeship to passing a written or oral examination. Twelve jurisdictions require prior training or experience; five use some type of testing; three, bonding; three, references (several jurisdictions reported combinations of requirements); 13 have no minimum qualification standards but

two of these pointed out that their programs registered agencies and therefore did not control qualification of persons - leaving that responsibility to the registered agency.

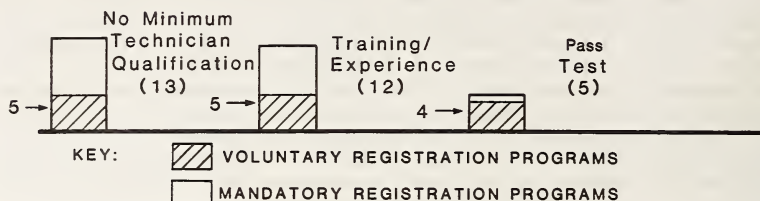


Figure 5. Service Personnel Requirements

Only five of the 15 jurisdictions that give written or oral exams (from Question 5) mentioned the need to pass an exam as minimum qualifications for technicians. Only six jurisdictions reported prior experience and only one (CT) specified prior quality of work as a minimum qualification. This last aspect of the responses is somewhat in conflict with Question 5 which indicated seven jurisdictions require a minimum quality of service for registration. It is possible that most of those responding to the present question perceived requirements for performance as separate or different from requirements for technician qualifications.

QUESTION 8 - Is all service agency equipment examined and tested by the State lab?

<u>Yes</u>	<u>No</u>
AL	CA - none required
AZ	CO - will accept other NBS-
AR	approved lab certificates
CT	KS - weights only
FL - all standards calibrated by lab,	MS - evidence of calibrated test
but not tools, scopes,	weights
voltmeters, etc.	NV - only check certified
	standards (with reciprocity)
	periodically
GA	(OR)- 90 percent is checked
HI	UT - only certify standards
ID	necessary for field testing
IL	WI - accept other State lab certificates
LA	NYC- annual test at NYC lab
KY	

(continued)



## Tally (continued)

YesNo

ME

MN

MO - reciprocity with other  
States too() indicates State that reports neither mandatory  
nor voluntary registration program.

MT

NE

NH

NJ

NM

NC

ND

OK

SC

SD

TN

TX - reciprocity

VT

WY

PR299

This question was designed to determine whether trucks and other service equipment were reviewed as to their adequacy or whether just calibration of field standards took place.

Twenty-nine jurisdictions report that all service agency equipment is examined. Three of these 29 mentioned that reciprocity with other State programs is also maintained. One State indicated that all agency standards were calibrated by their State metrology lab but tools, scopes, voltmeters, etc. were not calibrated.

Of the nine jurisdictions not examining agency equipment, only one State (CA) indicated that calibration of working standards was not a requirement. It was determined in the analysis of Question 6 that as many as four jurisdictions (CA, MS, NV, NYC) may not specifically require calibration of standards; the responses to this question indicate that two (MS, NV) of these four do require evidence of certified test weights and one conducts an annual test (of unspecified dimension) at its city lab (NYC).

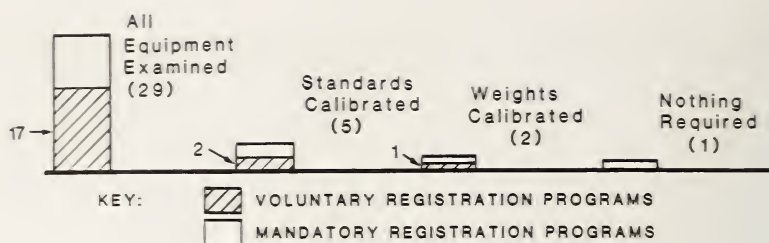


Figure 6. Extent of Equipment Examination or Test

QUESTION 9 - What privilege does registered agency/servicepersons have?

Remove rejection tag/ place in service rejected equipment	Place new equipment in service	Other (explanation)
AL	AL	
AZ	AZ	
AR	AR	
CA	CA	CA (permitted to break security seals)
CO	CO	CO "
CT	CT	
FL		
GA	GA	
HI	HI	
ID	ID	
IL	IL	
IA	IA	
KS	KS	
KY	KY	
ME	ME	
MN	MN	
MS	MS	
MO		
MT	MT	
NE	NE	
NV	NV	
NH	NH	
NJ		

(continued)

# Tally (continued)

Remove rejection tag/ place in service rejected equipment	Place new equipment in service	Other (explanation)
NM	NM	
NC	NC	
ND	ND	
OK	OK	
SC	SC	
SD		
TN	TN	
TX	TX	
UT	UT	
VT	VT	
WI	WI	
WY	WY	WY - (place used equip. in service)
PR	NYC	NYC- (remove con- demned tags upon destruc- tion)
<u>36</u>	<u>32</u>	<u>4</u>

In 31 jurisdictions the service agent can both remove a rejection tag and place new equipment in service; in five jurisdictions the service agent can only remove rejection tags and place rejected equipment in service; and in one jurisdiction, the service agent can only place new equipment in service and destroy condemned equipment.

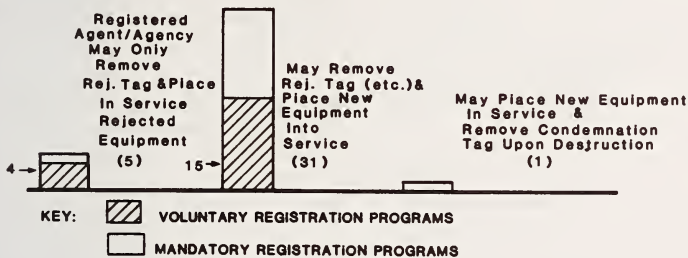


Figure 7. Privileges of Registration

It is again interesting to note that three jurisdictions (FL, MO, and SD) that report privileges only to remove a rejection tag and place in service previously rejected equipment (rather than including the privilege to place new equipment in service) have fully adopted the model regulation that also gives this latter privilege.

QUESTION 10 - What reports or procedures are used to review the quality of work done by the agency?

<u>Place-in-service-report</u>	<u>Other</u>
AZ	AL - random testing by State inspectors
AR	
CA	CO - scales tested as soon as practical after scale placed in service
CT	
FL - "insufficient repair notices" sent to responsible persons when scale placed in service by company is rejected again. Notices reviewed annually.	GA - service certification and test report (after service)
HI	
ID	ID - tested by weights and measures after service when possible
IL	
IA	
KS	
KY	KY - review by weights and measures inspectors after service
ME - written report	
MN	
MS	
MO	
MT	MT - (inspector's) test reports on devices repaired or placed in service
NE	NV - field inspection
NV	
NH	
NJ	
NM	NM - repair firm's test reports and follow up inspection
	NC - field inspector's report
ND	ND - test reports
OK	(OR) - how it is found after service SC - acceptance by customers and routine rechecks

(continued)



# Tally (continued)

	<u>Place-in-service-report</u>	<u>Other</u>
SD		
TN		
TX		TX - reinspection on all out-of-order devices
UT		[UT - <u>considering</u> test of device after placing in service]
VT		
		WI - reinspect on random basis or if problem suspected
WY		WY - field test report
		PR - reinspection of rejected devices
NYC		
30		16

Reported are responses from 38 jurisdictions. Oregon's response was included because of the singular importance of performance to their program (see Question 1).

Twenty-two jurisdictions responded that quality review was accomplished only by using the agency's placing-in-service reports, eight use routine or random reinspection of the agency's work, and eight use both the placing-in-service reports and retest results.

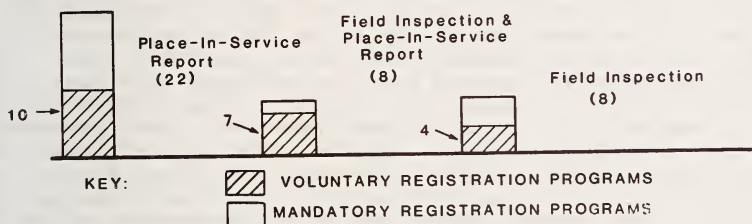


Figure 8. Means of Quality Review

It should be pointed out that a majority (12) of those jurisdictions with mandatory programs (17 in all) use only the place-in-service report to monitor the work of servicepersons or service agencies.

QUESTION 11 - Do you maintain witness of test arrangements with servicepersons?

<u>No</u>	<u>Yes</u>
AZ	AL
CA	AR - nothing in contract
CT	CT
FL - (if this refers to service contracts)	CO - upon occasion
GA	HI
ID	KS - sometimes
IL	ME
IA	MT
KY	NV - in some areas, e.g., large capacity meters
MN	NH - occasionally
MS	NJ - large capacity scales and meters only
MO	NM
NE	OK
NC	SD
TN	WY
TX	NYC
UT	
VT	
WI	
<u>PR</u>	
20	16
	<u>No Answer</u>
	ND
	SC

Witness-of-test arrangements are those occasions in which the weights and measures agency does not actually do the testing of the device but witnesses the test done by another (a service agent in this question) such that the test results are in lieu of the official weights and measures test performed by weights and measures inspectors. This question could have been answered by all jurisdictions, including those that do not have a registration program. Because of where the question appeared in the multipage questionnaire, only those jurisdictions having registration programs responded. Twenty jurisdictions reported having no witness-of-test arrangements and 16 having such arrangements; one jurisdiction (CT) answered both yes and no and two jurisdictions that responded to the rest of the questionnaire did not answer this question. Three of those 16 that do witness tests said that such arrangements were only occasional; one said only in some areas (as, for example, large-capacity meters); and, one said only for large capacity scales and meters. Besides providing opportunities to actually see repair or installation capability, witness-of-test would seem very beneficial in terms of conserving use of governmental equipment if service agents or agencies possess enough equipment, standards, etc. to conduct the tests with only a government inspector's presence necessary. However, if witness-of-test arrangements must be made in order to supplement service agency equipment, the additional costs of scheduling a meeting, rerouting equipment, etc., can be justified only

if the government inspection agency must also supplement its own equipment in order to test very large capacity devices.

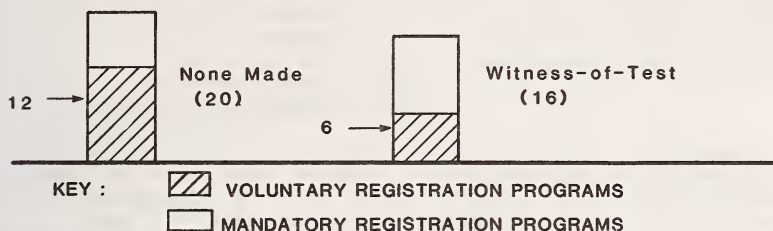


Figure 9. Status of Witness-of-Test Arrangements with Service Agencies

There seemed to be no correlation between jurisdictions having specified minimum equipment requirements for their service agencies (see Question 6) and those that also maintained witness-of-test arrangements.

QUESTION 12 - Do you have guidelines or requirements as to how soon newly repaired or installed equipment is inspected by an enforcement official after a registered service agency installs or repairs a device?

<u>No</u>	<u>Yes</u>
AR	AL - randomly checked within 30 days
CA	AZ - randomly checked within 30 days;
CO	if compliance less than 90 per-
ID	cent, 100 percent rechecks
IL	CT - 10 days
ME	GA - 30 days
MT - as soon as possible	FL - 30 days - we make every effort
NE - as soon as possible	HI - 20 days
NH	IA - 30 days
NC - every effort to inspect	KS - 30 days
as soon as possible	KY - between two weeks and one month
OK	MN - 30 days - not all meet that
(OR) - as soon as possible	guideline
SC	MS - 30 days
SD	MO - 30 days
TN	NV - as soon as possible
UT - allow sufficient time of	NJ - new devices cannot be used until
all working parts to	tested
properly seat themselves	

(continued)

# Tally (continued)

<u>No</u>	<u>Yes</u>
WI	NM - 30 days
	ND - 60 days on new equipment
	TX - (no further information)
	VT - 5 days for liquid measuring devices and 10 days for scales
	WY - 30 days or sooner
	PR - as soon as notified
	NYC - treated as priority
<u>17</u>	<u>21</u>

Of 37 jurisdictions with registration programs and one with an "other" system (see Question 1), 17 had no guidelines for a reinspection interval but four of these reported "as soon as possible." One jurisdiction reported they waited "a sufficient time for all parts to seat properly." Twenty-one jurisdictions reported that they do have guidelines or requirements: for 11 the requirement was 30 days (two of these said random checks only); for one, 20 days; for one, 10 days; for one, two weeks to one month; for one, five days on liquid measuring devices and 10 days on scales; and, for one, 60 days for new equipment.

Three jurisdictions that checked the box labeled "yes" responded the same as four jurisdictions checking the "no" box, that is, "as soon as possible." One jurisdiction said that new devices could not be used until tested, so by interpretation, that meant "as soon as possible" as well. One jurisdiction did not indicate what the time frame for reinspection was, although that jurisdiction responded that it did have such guidelines. Twelve of the 17 mandatory programs have either no guidelines for return time for a retest or else an "as soon as possible" guideline. Figure 10 represents a summary of the responses.

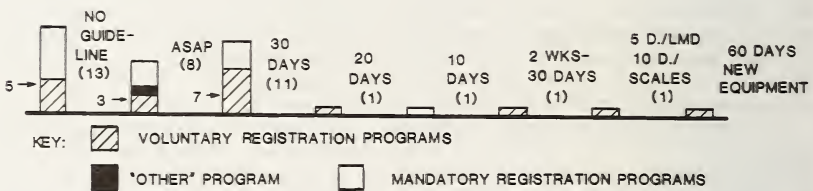


Figure 10. Time Interval Between Repair (or Installment) and Inspection by Weights and Measures



QUESTION 13 - Does the weights and measures jurisdiction use a variable frequency of inspection (VFI) program?

<u>No</u>	<u>Yes</u>
AL	CA - one county random samples work,
AZ	22 planning many types of VFI
AR	FL - guidance from office as to inspection problems; increased inspection
CO	of high volume devices, commensurate with work schedules, distances, etc.
CT	
DC - devices must be inspected every six months	
GA	HI - computer printout of commercial government, private, military exchanges by island, zip code or randomly
ID	KS - to some extent
IL	KY - random inspection unannounced
IA	ME
MN	MT - not planned, never test 100 percent; therefore must set priorities
MS	NV - a two year schedule for some areas and categories
MO	NH
NE	ND - annually
NJ	OK - small scales annually;
NM	large scales at lengthy intervals due to lack of equipment and staff
NC	WY - no set policy; inspector conducts his own program
(OR)	SD - periodic inspection within 30 days
SC	VT - plan different times each year
TN	WI - all devices randomly selected with variable frequency except
TX	200 assigned motor vehicle scales out of total of 1600, randomly selected to be tested annually
UT	
WY	
PR - except inspection program often interrupted	
NYC	

25

15

This question could have been answered by all jurisdictions, but again, because of where it appeared in the questionnaire only 39 jurisdictions responded. One jurisdiction answered both yes and no to this question (WY).

Of those that responded affirmatively (that is, that they did have VFI programs), only four jurisdictions (CA, FL, HI, and WI) provided descriptions of programs that might be called "structured" VFI programs. Only two of these (CA and WI) were very specific in nature. Constraints to accomplishing annual testing apparently have made priority setting and some type of VFI necessary in at least four jurisdictions (KS, MT, NV, OK). Random selection of when in a given year to test devices was a variation of VFI cited in some jurisdictions.

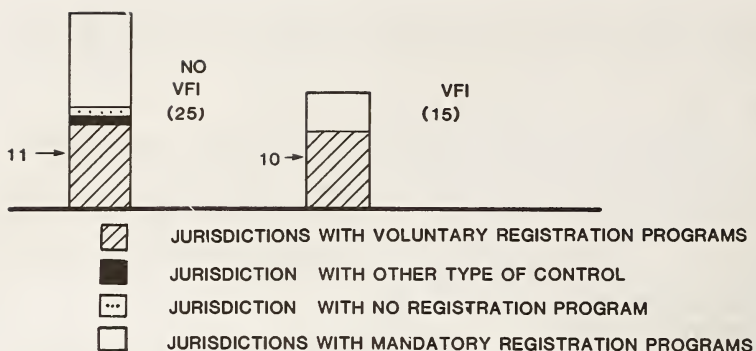


Figure 11. Jurisdictions Reporting Variable Frequency of Inspection Programs

Twelve of the 17 jurisdictions reporting mandatory registration programs do not use any type of VFI. In contrast 10 of the 15 jurisdictions reporting the use of VFI also had voluntary registration programs.

QUESTION 14 - Does this variable frequency program operate differently for newly repaired or installed equipment than for existing in-service equipment?

<u>No</u>	<u>Yes</u>
HI	CA - new tested as soon as possible,
KS	others on VFI
ME	FL - new and rejected tested within
NV	30 days
NH	KY - no further information
OK	MT - no further information
SD	ND - no further information
VT	WI - no further information
<u>WY</u>	
9	6

This question was intended for those jurisdictions that operated VFI programs. (From Question 13, it was found that 15 jurisdictions operate VFI programs.) Of those six jurisdictions reporting differences in their programs for new and existing equipment, only two jurisdictions (CA and FL) provided any further details.

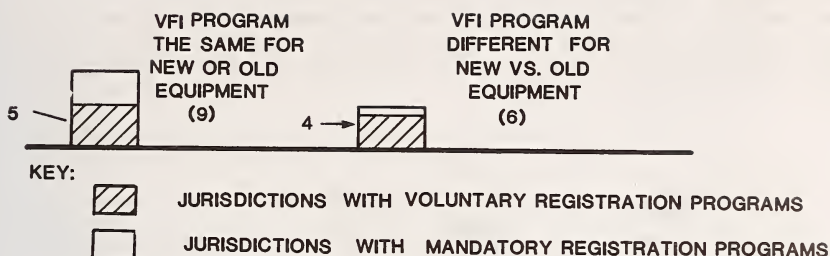


Figure 12. Operation of Variable Frequency of Inspection Programs

**QUESTION 15** - Does your jurisdiction accept reports of tests performed by service agencies as official verification of device performance?

No	Yes (requirements for agencies)	
AR	AL (S,T,U,G)	
CA	AZ (S,T,U,G)	
CT	CO (status reports, S,T,U,G)	
HI	FL (S,T,U,G)	
ID	GA (for 30 days)	
IA	IL (S,T,U,G)	
KY	KS (only for new devices) (S,T,U,G)	
MN	ME (T,U,G)	
MS	MT (S,T,U,G)	
MO	NE (until official retest - Handbook 44, EPOs)	
NV	NM (S,T,G - until retest)	
NH	ND (S,T,U,G)	
NJ	(OR) (no formal requirement)	
NC	SD	
OK	TN (only in emergency)	KEY: specifications S
SC	VT (until reinspected) (S,T,U,G)	tolerances T
TX	WI (T)	user requirements U
UT	WY (Handbook 44 - S,T,U,G)	general code G
PR		
NYC		
20	18	

Eighteen jurisdictions report that they accept reports of tests by service firms as official. Of these, four jurisdictions responded that the status of these tests was official until reinspection by the

weights and measures officer. One of these jurisdictions responded that the test was official "only in emergency," again implying until reinspection. Of these 18 jurisdictions, ten responded that they expected requirements including specifications, tolerances, user requirements, and general code requirements to be applied by the service agent or agency. One of the 18 expected only tolerance requirements to be applied; one, no user requirements; and one, no specifications. A majority (11 of the 17) of the mandatory registration jurisdictions do not consider the report of test performed by the service agency as official.

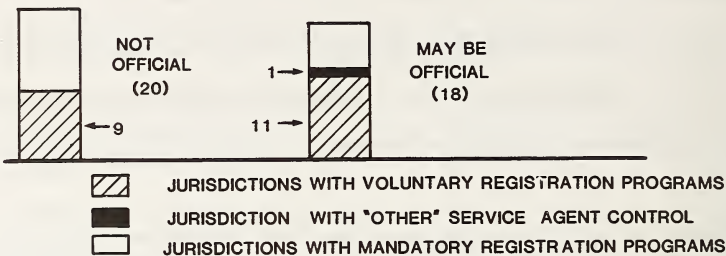


Figure 13. The Status of Service Agency Reports of Tests

QUESTION 16 - Is registration reciprocal with other States?

<u>No</u>	<u>Yes(Which ones?)(How is reciprocity instituted and maintained?)</u>
CA	AL - all States traceable to NBS, oral agreement and copy of reports
CO	AZ - for similar programs, a memo of understanding
CT	AR - copy of reports
FL	IA - only exams administered by MO recognized in IL
HI	GA - on certification of weights
IL - only exams administered by MO recognized in IL	ID - gentleman's agreement with WA, OR, UT, WY, MT (still register companies from these States who do business in our State)
IA	MO - KS and IL, memo of agreement
KS	MT - notification from other States and copy of calibration certificate for equipment
KY	(OR)- nothing formal
ME	SD
MN	(continued)
MS	



# Tally (continued)

<u>No</u>	<u>Yes(Which ones?)(How is reciprocity instituted and maintained?)</u>
NE - only reciprocity on equipment calibration	TX - on certified equipment, honor by gentleman's agreement
NV	WI - all certified labs
NH	
NJ	
NM	
NC - calibration honored	
ND	
OK	
SC	
TN	
UT	
VT	
WY - however, calibration reciprocity	
PR	
<u>NYC</u>	
27	11

Of the 27 jurisdictions that reported no reciprocity of registration with other States, four added that they honor calibrations of field standards performed by other jurisdictions (one honors only one other State's). Apparently, four of the jurisdictions that report reciprocity with other jurisdictions recognize service agency or person registrations based on certification of their equipment by other States. Therefore, the meaning and extent of reciprocity is interpreted differently by the different States.

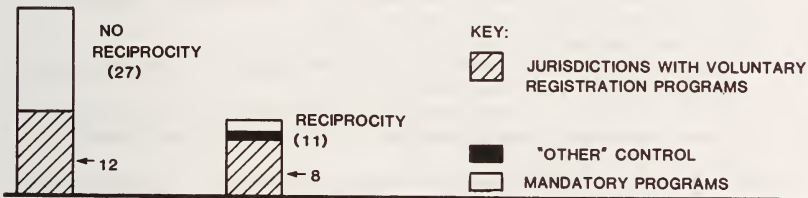


Figure 14. Status of Registration Reciprocity

Fifteen of the 17 jurisdictions with mandatory programs have no reciprocity. Nine of the 11 jurisdictions reporting reciprocity have voluntary programs.

Nine of the 14 States that have fully adopted the NCWM model regulations do not recognize another State's registration, even though there is a section in the Model Registration Regulation permitting such agreements.

QUESTION 17 - What constitutes grounds for suspense or withdrawal of a Certificate of Registration?

- AL - failure to provide quality workmanship or maintain standards
- AZ - can revoke license; currently revising rules to allow for suspension
- AR - violation of Regulation 5 (State regulation)
- CA - continued, flagrant violation
- CO - 10 percent of installations or service do not meet Handbook 44; failure to comply with State laws or regulations
- CT - incompetent, inefficient, unscrupulous, unsuitable, or violation of Title 43 of CT General Statutes
- FL - failure to have standards calibrated (2 years) and excessive rejections
- GA - violation of GA laws, rules, regulations; failure to meet Handbook 44
- HI - uncertified standards; not satisfying rules; unsatisfactory maintenance and repair history
- ID - continued poor service
- IL - inaccurate fees or no bond; doesn't pass examination; not proper amount of equipment; cannot install or service properly
- IA - poor workmanship
- KS - complaints from user; bad record
- KY - repeated poor quality work; uncertified weights; on Director's authority; not following rules, guidelines, forms
- ME - upon a hearing and notice; found incompetent; inefficient, unscrupulous, or unsuitable
- MN - failure to report, to properly repair or install, to comply with laws, rules and regulations
- MS - improper scale adjustment; removing red tags without repair
- MO - poor quality work
- MT - continued poor work
- NE - failure to pay fee, to have adequate equipment, to obtain annual calibration
- NV - failure to register, report; remove tags without authorization
- NH - failure to report; inaccurate tests; noncomplying equipment
- NJ - dishonesty, incompetency
- NM - faulty installation, improper repair; violation of registration requirements
- NC - continued poor performance
- ND - equipment not calibrated annually; good cause
- OK - failure to report, or to repair to specifications
- (OR) - history (2 or more) occasions of inadequate service
- SC - flagrant incompetency

(continued)

Tally (continued)

SD - (none listed)  
 TN - negligence of duty  
 TX - for good cause  
 UT - failure to certify field standards, to report, to do capable work  
 VT - violation of regulation or law  
 WI - uncalibrated standards (required every 2 years)  
 WY - overcharge; poor service; impersonating inspector  
 PR - careless, negligent (once)  
 NYC- violation of statute and regulations

Of the 38 responding jurisdictions, 11 report requiring a history of violations in order to suspend or revoke the certificate.

QUESTION 18 - Has your jurisdiction ever suspended or withdrawn a Certificate of Registration?

<u>No</u>	<u>Yes (For what reasons?)</u>
CA - one in process	AL - poor work
CT	AZ - failure to comply with statutes
GA	AR - noncompliance with Regulation 5
ME	CO - faulty work
MS	FL - see question 17
MO	HI - mis-, mal- and nonfeasance
NV - must hold hearings	ID - only 2 or 3 times
NH	IL - no ability to install vehicle scales
OK	to meet specifications and tolerances
ND	IA - (no further information)
SC - only warned	KS - only one since 1947 - overcharging for
TN	work, not doing job
VT - hearings only	KY - repeated poor quality
NYC- no records to answer	MN - improper and incomplete work
	MT - not complying with requirements
	NE - failure to have appropriate equipment
	calibrated annually
	NJ - dishonesty, incompetency
	NM - faulty installation
	NC - poor performance, unlawful acts
	ND - (no further information)
	(OR)- suspend departmental authorization to
	remove tags
	TX - failure to repair or install to
	standards, failure to report
	UT - failure to keep 10 000 lb of weights
	certified
	WI - failure to have standards calibrated
	WY - incompetence
	PR - upon reinspection, found no repair
	24

Although 24 jurisdictions have withdrawn or suspended registration certificates, two of these jurisdictions reported that this was a rare occurrence and a few more implied the same. It is not possible to confirm this because the questionnaire did not ask how many suspensions in a given period a jurisdiction issued.

Fourteen jurisdictions reported that they had never withdrawn or suspended registration. Ten of these 14 were jurisdictions with mandatory programs.

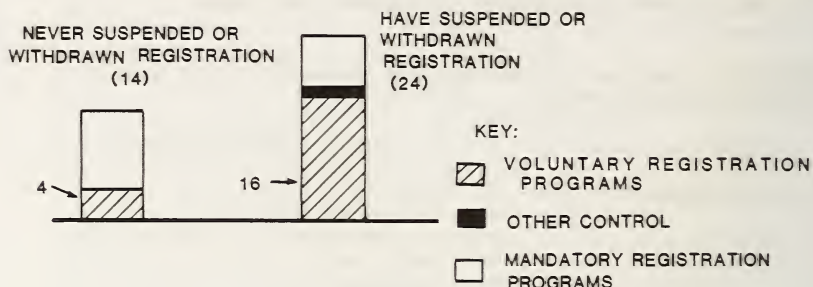


Figure 15. Incidence of Withdrawal of Registration

The need to hold hearings may constitute serious impediments to suspending registration in more than those jurisdictions that reported this as a problem. Documentation of occasions of poor quality work is also difficult and time consuming.

QUESTION 19 - Are there provisions for fines for failure to comply with the regulation?

<u>No</u>	<u>Yes (What are they?)</u>
AZ	AL - misdemeanor/\$500 fine, 6 months hard labor
AR	CA - any violation a misdemeanor
CO - only revoke license	CT - \$20-200/3 months in prison - first conviction; \$50-500/1 year - subsequently
FL	GA - registration rejected or suspended, or forfeiture of \$1000 bond after hearing
ID	HI - misdemeanor \$20-200 - first conviction; \$50-500 - second conviction
IL	IA - loss of bond
KS	
KY	
MN	

(continued)



Tally (continued)

<u>No</u>	<u>Yes (What are they?)</u>
MS	ME - \$100 maximum - first offense;
MO	\$200 maximum - subsequent offense
MT	NV - misdemeanor and civil penalty
NE	NH - first offense - maximum \$100;
NC	subsequent offense - maximum \$200
ND - only revoke permit	NJ - first offense \$50-100 or 10 to 90 days in
OK	jail second offense \$100-250;
SC	subsequent offense \$250-500
SD	NM - \$20-500 and/or 90 days to 1 year in jail
TN	(OR)- upon conviction "class B misdemeanor"
UT	TX - \$10-200
WI	VT - \$200 for first offense;
WY	\$500 for subsequent offense
PR	NYC- \$100 maximum
23	15

Fifteen jurisdictions report having a fine schedule for failure to comply with the registration regulation. Ten of the 17 jurisdictions with mandatory registration programs have provisions for fines. Twenty three jurisdictions do not impose fines. Sixteen of the 20 jurisdictions with voluntary programs do not impose fines.

It is interesting to note that eight of the 15 jurisdictions that do provide for fines if their registration program is not complied with have never suspended or withdrawn a certificate of registration (see Question 18). Does this mean that (1) the penalty is too great for the perceived wrongdoing, or (2) that fines are an easier way to gain compliance rather than suspension or revocation of registration? The questionnaire was not designed with these possible explanations in mind and so, cannot answer them.



Figure 16. Status of Registration Programs with Provisions for Fines

QUESTION 20 - Has a registration of servicepersons/agencies saved government inspection time?

<u>No</u>	<u>Undecided</u>	<u>Yes (How much?)</u>
AZ	CA - not determined	AL - 50 percent
MS	ND - no answer	AR - especially witness of test
MO	SC - possibly	CO - do not make special trips after repair
NH	TX - no comparison	CT - ?
OK	data because	FL - very difficult to estimate
TN	of age of	GA - no information available
PR	program	HI - two hours/day; 10 hours/week; 65 days/year
NYC		ID - cannot quantify
		IL - can schedule inspection at our convenience rather than right away
		IA - 20 percent
		KS - 50 percent including variable frequency of inspection
		KY - regular schedule rather than accommodating rechecks
		ME - 50 percent at least
		MN - In 1976 inspection cycle for volumetric and light capacity was four years; heavy capacity was seven years. Since voluntary registration program, inspection cycles completed on annual basis. Twenty-five percent of inspector's time is used to monitor service people.
		MT - Cost to industry without it would be hundreds of thousands of dollars
		NE - convenience of scheduling
		NV - unknown savings but equipment usually passes inspection
		NJ - unable to determine how many fuel oil dealers licensed so they can repair at night and on weekend without disruption to service
		NM - ?
		NC - not known but new devices can be put into service without official test
		ND
		UT - identifies new installation faster - eliminate inspectors' leg work
		VT - 20 percent
		WI - may save 20 percent of inspection time
		WY - assistance to industry for placing devices into service
<u>8</u>	<u>4</u>	<u>25</u>

A clear majority of jurisdictions (25) believes a registration program is a savings, but there was only one documented case to prove it (MN).

Again, it is interesting that five of the eight jurisdictions that did not feel there was any savings in a registration program have mandatory programs. Four jurisdictions were undecided about the benefit of such programs.

206

#### GUIDELINES AND INTERPRETATIONS

##### 206-1 BARK MULCH

Several issues associated with this product were discussed by the Committee: appropriate labeling, package test methods, and allowable variations. The Committee would especially like to thank the Weights and Measures Section, Virginia Department of Agriculture and Consumer Services, for their assistance and data on these issues.

##### 206-1-1 APPROPRIATE LABELING

Horticultural and landscaping bark mulch is sold by volume and is usually labeled in terms of cubic feet. The Committee is of the opinion that a label expressing a net weight is not adequate for consumer usage since the product is applied so as to cover a given area to a given depth. Volume expressed as a cubic measure is, therefore, most appropriate for this product.

As to metric labeling, the Model State Packaging and Labeling regulation, Section 6.6.(e) specifically states that a declaration of quantity:

in units of volume other than liquid measure, shall be in terms of the liter and milliliter, except that the terms cubic meter and cubic centimeter will be used only when specifically designated as a method of sale.

Bark mulch and other kindred products are being labeled in cubic decimeters ( $\text{dm}^3$ ) for sale both in the U.S. and Canada. The unit is not readily recognized in the U.S. and is not listed as one of the symbols permitted in Section 6.6.1. of the Model State Packaging and Labeling Regulation ( $1 \text{ dm}^3 = 1 \text{ L}$ ). This product does not come under the jurisdiction of any Federal agency with respect to net contents labeling nor does there exist a specific method of sale for bark mulch.

The Committee considered whether other metric units were more appropriate for this product, for example:

3 cu ft =	84.9 L	(or 84 L)
=	$84.9 \text{ dm}^3$	(or $84 \text{ dm}^3$ )
=	$0.0849 \text{ m}^3$	(or $0.084 \text{ m}^3$ )
=	$84900 \text{ cm}^3$	(or $84000 \text{ cm}^3$ )

(The numbers in parenthesis are based on the assumption that indicating 3 digits in the metric declaration is an exaggeration of the actual packaging accuracy.)

The Federal Trade Commission has issued staff guidelines on metric equivalents that go beyond guidance currently covered in the NCWM models. It is called the "Rule of 1000" and is quoted below:

Rule of 1000 - For packaged goods, it is preferred that selected multiple or submultiple prefixes for units result in numerical values between 1 and 1000, e.g., 1.96 kg, not 1960 g or 750 mm, not 0.75 m. Use only decimal fractions - common fractions, e.g., 1/2, 1/4, etc., are not permitted.

Applying this rule, either the L or dm<sup>3</sup> designation would be appropriate for bark mulch, except that dm<sup>3</sup> is not an accepted term in the Model State Packaging and Labeling Regulation.

The Committee solicits the opinion of NCWM membership and other interested parties as to whether there exists a need for a method of sale for bark mulch. The Committee will investigate whether labeling in liters is permitted in Canada (in order to facilitate U.S. manufacturers to sell their products in Canada) and will hold this item over for further input in the coming year.

#### 206-1-2 PACKAGE TEST METHODS

The Southern Weights and Measures Association and the National Bark Producers Association, Inc. have requested the assistance of the Committee in establishing uniform measuring procedures to be used by enforcement agencies to check the accuracy of declarations on packaged bark mulch. Package sizes vary predominantly from 2 to 3 cu ft. The container used to measure the accuracy of the package label at present varies from jurisdiction to jurisdiction as do the filling operations (fill and shake, tamp down, etc.). Although this issue is not directly a Laws and Regulations matter, it should be resolved before the next issue, that of allowable variations, is resolved. Therefore, the Committee recommends the use of the following test procedure provided by the National Bark Producers Association on a conditional or trial basis in order to proceed on enforcement problems that may exist in the field and in order to accumulate data and information on the magnitude of reasonable variations to be permitted for this product (see voting key 206-1-4). The Committee requests jurisdictions and companies with different container dimensions or other procedures to submit information on their methods and on differences between their method and the proposed one below.

The Committee recommends holding this item over for further input during the coming year.



#### 206-1-3 PROVISIONAL METHOD

Construct container with interior dimensions 9 inches by 16 inches by 40 inches high with 2 opposite inside walls of the container marked or scribed at 0.03 ft (0.36 in) intervals above and below the 3 cu ft (36-in) height. Intervals down to 2.70 ft are recommended. The marks below 3.00 ft indicate the percentage underfill of a 3-cu ft bag (each 0.03-foot mark is equivalent to 1% of the 3-cu ft label). Variations in this container design will have to be made to accommodate smaller packages (extend marks further down the container) or rulers not reading to 0.01 in.

In the latter case, marks or scribes such as the following would be appropriate (for example). For container marked at 1/8 in intervals, each interval is equivalent to  $0.125 \times 9 \times 16 = 18$  cu in (3 cu ft = 5184 cu in; 2 cu ft = 3456 cu in).

For each bag of mulch to be measured, pour bag into container, and level the contents by hand. Do not rock, shake, drop, or tamp the container. Read the vertical marks in order to determine package net contents.

#### 206-1-4 ALLOWABLE VARIATIONS

The National Bark Producers Association has requested and the Southern Weights and Measures Association has endorsed permitting an individual package variation of 5%. The suitability of this request cannot be judged without substantially more data than the Committee has had submitted to it. It is for this reason that the Committee wishes to provisionally recommend the procedure described in the voting key 206-1-3 in order to obtain the necessary data to evaluate the request. In any event, the variation requested is not to be perceived or applied as a tolerance. On the contrary, the average requirement must still be met. What is being considered by the Committee is the suitability of adding a section similar to Section 10.9.3. Textiles: Variations from Declared Dimensions. The Committee intends to carry this item over for further input.

(Item 206-1 was adopted.)

#### 206-2 GUIDELINES ON NET CONTENTS DECLARATIONS IN METRIC UNITS

The Committee discussed the need for additional guidance to packagers who wish to declare metric units in addition to inch-pound on their package labels. One question which came before the Committee was: What is the appropriate metric declaration for a package labeled "1 oz;" should it be "28 g" or "28.3 g" or "28.34 g"? Another related problem was that of a packager who labeled his canned goods "7 oz" in the U.S. and wished to add "200 g" to the same label in order to export the same product to a country with standardized size requirements. (In this latter case, 7 oz is equivalent to 198 g.)

The Committee is of the opinion that adequate information and guidance already exists in the Model State Packaging and Labeling Regulation Sections 6.8. proviso, 6.10. (with emphasis on 6.10.(d)), and 6.11.3.

Thus, if the examples above are evaluated in terms of these sections, the Committee hopes that this will constitute sufficient guidance for other problems or questions that packagers may have within the general area of metric declarations.

In the example of suitable metric declaration for a 1 oz package, a key to this decision is found in Section 6.11.3. in which it is stated that "the number of significant digits retained should be such that accuracy is neither sacrificed nor exaggerated." It may be entirely appropriate that one ounce of candy be labeled 28 g but that one ounce of costly automotive chemical be labeled 28.34 g. The declaration should neither exaggerate accuracy (which a candy label reading 28.3 g may do--depending on the measurement accuracy of the candy packaging system) nor sacrifice accuracy (which a chemical label reading 28.3 g may do if the packager delivers each package with the accuracy of 0.01 g). Thus, there may be exceptions to the general rule stated in Section 6.11.3. that converted values should be rounded down by dropping any digit beyond the first three.

In the second example, a packager wishing to meet standardized package requirements of other countries cannot, within the statement of principle in Section 6.11.3, label 7 oz packages as 200 g. Seven oz is not equivalent to 200 g and the converted value of 200 g is incorrectly rounded up to 200 g rather than down. There are, however, two other possibilities that packagers in such situations may wish to explore. The first is to determine if there are restraints (among Federal regulations which may cover any given product) to making "200 g" the primary (first declaration on the package and then the declaration in parenthesis (or second) to be "7.05 oz" (the calculated inch-pound representation). The significance of this change in label is that the product fill weight may have to be increased in order to meet the average requirement for 200 g (or 7.05 oz). The second possibility is, of course, to consider overlabeling or separate labels for export.

The Committee cannot at this time endorse 7 oz (200 g) net weight declarations because:

- o the weights are not equivalent; therefore, it is possible for the package to be found in compliance with the inch-pound declaration and not with the metric,
- o the "equivalent" (second) quantity is not rounded down (so as to never exaggerate the quantity declared).

(Item 206-2 was adopted.)

206-3      INTERPRETATIONS FOR SECTION 10.5. COMBINATION PACKAGES AND  
SECTION 10.6. VARIETY PACKAGES, MODEL STATE PACKAGING AND  
LABELING REGULATION

The Committee reviewed Sections 10.5 and 10.6 of the Model Packaging and Labeling Regulation in order to determine the need for further clarification. Several questions have arisen over the years with respect to:

- (1) What are the net contents labeling requirements for seasonal gift packages composed of varying types of commodities or goods all combined into one package?
- (2) Is the example provided in Section 10.6. entirely in keeping with the declaration requirements? (In this section, it is required that total net contents be declared, but the example shows both total and individual net contents.)

It is the opinion of the Committee that there is no need to modify these sections, but the discussions below may serve as guidance to enforcement officials and packagers on these sections.

As to the question of labeling requirements for seasonal gift packages, it must first be determined what the individual units comprising each package are. The following examples are possibilities:

- (a) individual packages of sausage, individual packages of cheese;
- (b) several kinds of fruits of different weights;
- (c) several kinds of fruit, bottle of wine, several packages of cheeses.

Examples (a) and (c) above are combination packages and should be labeled with net quantities of each unit or type of unit. It is possible to combine fruit net weight (or count if appropriate) as one declaration, cheese net weight as a second, etc.

Example (b) above is a variety package and must be labeled with the total net weight or count (as appropriate) of fruit in the package. It is also reasonable for packagers to include, for full consumer information, a declaration of the individual net contents of each type of package or item in the gift package, although this latter declaration is not required (e.g., 1 lb bananas, 3 pears, etc.). This is also the key to the second question asked above concerning the example provided in Section 10.6.; that is, although a declaration of individual item net contents is not required, packagers are encouraged to provide additional information wherever useful to the consumer.

(Item 206-3 was adopted.)

206-4        GUIDELINES ON THE METHOD OF SALE FOR CLAMS, MUSSELS, AND  
              OYSTERS

California Weights and Measures transmitted a notice of FDA recommendations for the appropriate method of sale for clams, mussels, and oysters. An FDA representative at the Interim Meetings could not confirm the validity of these guidelines as agency recommendations and said, upon a call to FDA's Bureau of Foods, that there seemed to be some disagreement on the method of sale for these items. The Committee will transmit a letter of request to FDA for clarification of these guidelines and will carry this item over until next year.

(Item 206-4 was adopted.)

206-5        POLICY AND GUIDELINES ON MOTOR FUEL DELIVERIES (GAS PUMP)  
              PRICE POSTING AS RELATED TO CASH DISCOUNTS

With the appearance of different charges for retail motor fuel being assessed according to whether there is a cash or credit card transaction, the Committee was asked by the Southern Weights and Measures Association to develop requirements for suitable price posting in order to provide full consumer price comparison information and to reduce the chance of error or fraud in computing a final price.

Matters in this area are complicated by the confusion which exists regarding permissible practices under the Federal Cash Discount Act of 1981 (PL97-25). This Act prohibits credit card surcharges but permits discounts from the "regular price" for cash transactions. The Federal Reserve Board (FRB), responsible for writing regulations in this area, has proposed an interpretation of the Truth in Lending Act in the Federal Register (47FR20603, dated May 13, 1982). The text of that interpretation specifically concerning motor fuel retailing reads:

"Determination of the regular price. The "regular price" is critical in determining whether the difference between the price charged to cash customers and credit customers is a "discount" or a "surcharge," as these terms are defined in amended § 103 of the act. The "regular price" is generally the price displayed on the merchandise being sold. In the sale of motor vehicle fuel, for example, the regular price is the price displayed at the pump. As a result, the higher price (the open-end credit or credit card price) must be displayed at the pump, either alone or along with the cash price. A service station operator may display the cash price of fuel by itself on a curb sign, as long as the sign clearly indicates that the price is limited to cash purchases."

Since the Committee believes that the FRB interpretations would be additional to existing local requirements, and since many State laws are already in effect in the area of gas pump price posting, the Committee offers policy and guidelines (rather than a model



regulation) to be used in conjunction with existing or contemplated laws and regulations in order to obtain and maintain national uniformity in this area.

It is the opinion of the committee that the best means for preventing consumer confusion as to the actual total money value of a transaction is to automatically compute and display that money value at the motor fuel dispenser. In recognition of the limitations of existing device computing capabilities, when both cash and credit card transactions are offered from a single dispenser, the committee recommends permitting a cash discount chart to be used when separate pumps or islands cannot be dedicated either only to cash or only to credit card sales. However, the committee believes that the NCWM should encourage whatever technological innovations are necessary to produce devices which can compute and display, according to Handbook 44 requirements, the accurate total money value of a transaction (whether by cash or by credit card) at a single dispenser. Thus, the use of a cash discount chart as described below should be viewed as an "interim" practice similar to the interim practice of half-gallon pricing. The Committee, of course, recognizes that the period of time involved with such a "interim" practice may be significant because most of the equipment in the field today may require extensive modification or replacement.

The Committee wishes to thank the many State officials, Federal agency officials, and industry who provided input and assistance in this area.

#### Policy and Guidelines on Motor Fuel Deliveries (Gas Pump) Price Posting Relating to Cash Discounts

Discounting for cash transactions is a management decision of the merchandiser. Those merchants who elect to offer cash discounts on motor fuel must comply not only with the Federal Cash Discount Act but also with the State and local weights and measures laws and regulations. All such laws are intended to prohibit deceptive, misleading, or misrepresentative information to the consumer. The following guidelines are intended to apply to price advertising or posting at the streetside or highway as well as at the pump and to the price computed at the dispenser. These guidelines are applicable to other discount offers (such as combination purchases of car wash and gas for example).

1. If a price is posted or advertised, it must be available to all qualified customers. If any condition or qualification is required to obtain the posted price, that condition must also be posted clearly and understandably in conjunction with the price wherever it is posted.
2. The cash price may be disclosed on the posted or advertising sign by itself as long as the sign clearly indicates that the price is limited to cash purchases and as long as State requirements do not prohibit it.

3. If the merchandiser elects to establish separate pumps or islands for credit card and for cash sales, the pumps or islands shall be clearly identified as "cash" or "credit" to avoid customer confusion.
4. If the merchandiser wishes to offer cash discounts off the credit card price as well as permit credit card sales from a single dispenser, a chart expressed in terms of both the total quantity delivered and the total cash discount applicable (in 1¢ increments) shall be prominently displayed so as to be easily read by the customer at the time of purchase. However, this practice should have only "interim" status.
5. In order to permit cash and credit card sales from a single dispenser with the minimum amount of customer confusion, the NCWM should adopt a plan and timetable for changeover to devices that can compute and display final money values for either cash or credit card transactions.

(Item 206-5 was adopted.)

206-6      GUIDELINE ON PACKAGED FOODS AND COSMETICS SOLD FROM VENDING MACHINES

As part of its review of the Model State Regulation for the Method of Sale of Commodities, FDA recommended adding a statement to Section 3.3 that packaged foods and cosmetics sold in vending machines must in general be labeled in accordance with requirements for similar articles not sold in vending machines (e.g., ingredient declaration requirements). The Committee recommends that this information be made a guideline rather than incorporated as part of the model regulation.

(Item 206-6 was adopted.)

206-7      METHOD OF RETAIL SALE FOR FRESH FRUITS AND VEGETABLES

As part of its review of and comments on Handbook 130, FDA recommended and the Committee concurs that the Guidelines on the Method of Retail Sale for Fresh Fruits and Vegetables be modified to indicate that whole melons can be sold by either weight or count. The guideline would be modified in the following way (entire guideline is not reprinted, only the entry of interest is reproduced here).

Commodity	Method of Sale
Melons (whole)	<u>Weight or Count</u>

(Item 206-7 was adopted.)

## 207-1      ANTIFREEZE REGULATION STUDY

At the 61st National Conference on Weights and Measures (1976) the Committee was requested by the Texas Department of Agriculture to draft a model antifreeze regulation. At that time, the Committee felt that this request was outside their area of expertise. The Arkansas Weights and Measures Division conducted a survey on the status of antifreeze regulations or laws in the States in 1981. It is the opinion of the Committee that the results of this survey may be useful to other States and therefore is printed as part of the Committee's report.

(Item 207-1 was adopted.)

## Antifreeze Survey

by

Sam F. Hindsman, Director, Weight and Measures Division,  
Arkansas Department of Commerce

- Purpose:** The State of Arkansas does not have an antifreeze quality law or testing program. This survey was initiated to determine if the State of Arkansas has a need for such a law and testing program.
- Data Collection:** The information was gathered by mailing a questionnaire to the Directors of Weights and Measures of each State (see Questionnaire).
- Data:** See Summary.
- Evaluation of Data:** The following evaluation is based on 100 percent return of information requested.
- 66% (33) Did not have an antifreeze law.  
34% (17) Did have an antifreeze law.
- The percent reporting substandard product (of the 34 percent that do have programs) is as follows:
- 59% (10) No problem.  
24% (4) 1 percent.  
5% (1) 4 percent.  
12% (2) 5 percent.
- Two States had had a testing program (South Dakota and Washington), but since they did not have problems, the programs were discontinued.
- Conclusion:** Even though 34% of the States have programs, their testing programs indicate that 5 percent substandard product is the maximum illegals found. Considering the lack of serious problems in antifreeze quality, it was concluded that the State of Arkansas should not initiate an antifreeze quality testing program.



## Questionnaire on State Antifreeze Laws

Please answer the following questions:

1. Does your State have an antifreeze law: Yes \_\_\_\_\_ No \_\_\_\_\_
2. If your answer is yes to question 1, are you using ASTM testing procedures? Yes \_\_\_\_\_ No \_\_\_\_\_
3. What has been your experience relative to substandard antifreeze products?  
Percent substandard \_\_\_\_\_  
No problems \_\_\_\_\_
4. What area of the testing of antifreeze do you find the most problem? Number according to the greatest to the least, number one being the greatest.

Boiling Point	_____
Reserve Alkalinity	_____
Specific Gravity	_____
Freezing Point	_____
pH of Antifreeze	_____
Pour Point	_____
Ash Content	_____
Corrosion	_____
Water Concentration	_____

5. Has the program contributed to providing the consumer with a better quality product? Yes No

Thanks for the above information and for an early response.

Summary of State Antifreeze Laws and Programs

STATE	Antifreeze Law Yes or No	If Yes: ASTM? Yes or No	% Substandard	Boiling Point	Reserve Alkalinity	Specific Gravity	Freezing Point	pH of Antifreeze	Pour Point	Ash Content	Corrosion	Water Concentration	Program Contribute To Better Quality Yes or No
Alabama	No												
Alaska	No												
Arizona	Yes	Yes. Through a Commercial Lab.	1%										
Arkansas	No												
California	Yes	Yes	No problem	2	6	4	3	7	5	8	9	1	Yes
Colorado	Yes	Yes											Yes
Connecticut	No												
Delaware	No												
Florida	Yes	Yes	5%	3	5	7	4	6	8	9	1	2	Yes
Georgia	Yes	Yes	5%								1		Yes
Hawaii	Yes	Yes	NA				2					1	Yes
Idaho	No												
Illinois	No												
Indiana	No												
Iowa	Yes	Yes	No problem	7	2	9	3	6	8	1	5	4	Yes
Kansas	No												
Kentucky	No												
Louisiana	No												
Maine	No												
Maryland	No												
Massachusetts	Yes	Yes	No problem	. . .		No problems	. . .						Yes
Michigan	No												
Minnesota	No												
Mississippi	Yes	Yes	1%	1									Yes
Missouri	No												
Montana	No												
Nebraska	No												
Nevada	Yes	Yes	4%	2	3	4	1	5					Yes
New Hampshire	No												
New Jersey	No												
New Mexico	No												
New York	No												
North Carolina	Yes	Yes	No problem	. . .		No problems	. . .						Yes
North Dakota	Yes	Yes	No problem	. . .		No problems	. . .						Yes
Ohio	No												
Oklahoma	Yes	Yes	No problem	2			1						Yes
Oregon	No												
Pennsylvania	No												
Rhode Island	No												
South Carolina	Yes	Yes	No problem	. . .		No problems	. . .						Yes
South Dakota	No*	*Had a program, but repealed by legislature.											
Tennessee	No												
Texas	Yes	Yes	1%	6	4	5	1	NA	NA	2	7		Yes
Utah	No												
Vermont	No												
Virginia	No												
Washington	No*	*Had a program, but no longer in effect.											
West Virginia	No												
Wisconsin	Yes	Yes	1%	2	3	4	1						Yes
Wyoming	Yes	Yes	No problem								1		Yes

207-2      MODEL PROGRAM FOR FIELD VERIFICATION OF DEVICES

(This item was carried over from the 66th NCWM, 1981, in which it was assigned a voting key of 205-1.)

Fairbanks Weighing Division of Colt Industries has requested this item to be tabled until the Conference has had an opportunity to study the results and implications of the survey on the Model State Regulation for the Voluntary Registration of Servicepersons and Service Agencies for Commercial Weighing and Measuring Devices (see voting key 205-1). The Committee concurs and recommends tabling this item.

(Item 207-2 was adopted.)

J. J. Bartfai, New York, Chairman  
S. F. Hindsman, Arkansas  
W. R. Mossberg, Los Angeles County, CA  
E. P. Skluzacek, Minnesota  
D. E. Stagg, Alabama  
C. S. Brickenkamp, Technical Advisor, NBS  
A. D. Tholen, Executive Secretary, NCWM

COMMITTEE ON LAWS AND REGULATIONS

(On motion by the committee chairman, the report of the Committee on Laws and Regulations voting key items 200 through 207-2 was adopted in its entirety as amended by the Conference. The results of the voting in the House of State Representatives and the House of Delegates under the Conference voting system are totalized in the table that follows. The Conference also authorized the Executive Secretary to make any appropriate editorial changes in the language adopted by the Conference.

VOTING RESULTS--Committee on Laws and Regulation

Voting Key	House of Representatives		House of Delegates	
	Yes	No	Yes	No
201-1				
202-1				
203-1				
203-2				
203-3				
204-1	43	0	33	0
204-2				
204-3				
204-4				
204-5				
204-6	39	0	30	3
204-7				
204-8				
205-1				
206-1	43	0	41	0
206-2				
206-3				
206-4				
206-5	35	1	38	0
206-6				
206-7	43	0	41	0
207-1				
207-2				



REPORT OF THE COMMITTEE ON  
SPECIFICATIONS AND TOLERANCES

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VOTING KEY

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INTRODUCTION

The Committee on Specifications and Tolerances submits its report to the 67th National Conference on Weights and Measures. The report consists of the interim meeting report as offered in the Conference Announcement and as amended by the final report.

The report comprises recommendations of the Committee that have been formed on the basis of written and oral comments received during the year and oral presentations made during the open meeting of the committee. All recommended amendments are to appropriate provisions of the "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices."

NOTE: Except where paragraphs are to be added or completely revised as indicated, changes are shown as follows: that which is to be deleted is shown lined out, and that which is to be added is underlined.

301

Section 1.14. GENERAL CODE

301-1 G-T. TOLERANCES

The Committee received comment from two sources to review this section as it had last year. The view of the Committee has not changed from that expressed in the past and it senses that support for this view is growing within the Conference. Thus the Committee presents the following for consideration.

Legal tolerances are for use by regulatory officials in determining if devices in commercial service are maintained in such a manner that the performance errors are sufficiently small that there is no serious injury to either the buyer or seller of commodities. The theory expressed by Handbook 44 with regard to acceptance and maintenance tolerances is sound; however, it is the view of the Committee that the conditions or situations when acceptance tolerances are applied are in need of change for the following reasons:

- (1) If acceptance tolerance is applicable for a test under existing Handbook 44 requirements, maintenance tolerance would be applicable for subsequent tests immediately after a

device is approved. Maintenance tolerances would be applicable for all subsequent tests until a device would be officially rejected for a performance failure. We reason that if maintenance tolerances are realistic and establish acceptable limits of inaccuracy, they should be appropriate for use at all times.

- (2) If adjustment of a device to acceptance tolerance becomes necessary after an official test, the additional service cost to the device owner that can occur is difficult to justify. It is often necessary for a service firm to return several times before a device is within acceptance tolerance although it may have been within maintenance tolerance after the first service.
- (3) The cost to regulatory agencies for numerous retests necessary to verify that a device has been returned to acceptance tolerance is difficult to justify. Funds expended for retesting a device that is within maintenance tolerance to return it to acceptance tolerance could be used for testing other devices that may not be functioning within maintenance tolerances.
- (4) Overall accuracy of devices in use should not deteriorate as a result of applying maintenance tolerances for all tests except those in G-T.1. (a) and (b) as changed. Section 2.3, Fundamental Considerations, and G-UR.4.1. and G-UR.4.3. stipulate that service personnel shall adjust as closely as possible to zero error and that equipment owners may not take advantage of the tolerances by adjusting equipment to have a value or give performance at or close to the tolerance limit. This should eliminate the possibility that equipment will be deliberately adjusted to function just within maintenance tolerances and to the benefit of the user.
- (5) It is difficult to interpret the existing paragraphs and especially difficult to define "major reconditioning or overhaul."

The Committee recommends the following:

Amend G-T.1. ACCEPTANCE TOLERANCES to read:

G-T.1. ACCEPTANCE TOLERANCES--Acceptance tolerances shall apply as follows:

- (a) To any equipment undergoing type approval or prototype examinations.
- (b) To any equipment undergoing an initial verification.

Add a new definition to read:

*initial verification.* The term initial verification shall mean any official test of a device during the first 30 days following the notification and/or placing in use of a new weighing or measuring device, or one that is reinstalled at a different place of business.

The Committee is aware and wishes to inform the Conference that similar requirements are in effect in other places throughout the world; e.g., The Netherlands, the United Kingdom, and Japan.

(Item 301-1 was defeated)

302                    SECTION 2.20. SCALES

302-1            S.1.4.2. DIGITAL INDICATIONS/VALUES' DISPLAYED, TEMPERATURE  
                  CONDITIONS

Since the adoption of this specification, there have been technological advances and subsequent changes in the design of new equipment which, it is assumed, has brought about improved measurements. The principal problem that had been generated as a result was the lack of an appropriate type approval test method that can prove conclusively that equipment is designed to meet this specification. Appropriate tests can be time consuming and require the use of expensive equipment, both of which may not be readily available. The Committee is pleased to report that this problem has been resolved, along with many others, by the NTATF Technical Subcommittee on Scales and is included in the check list referenced in Item 302-15. Still to be resolved are the appropriate performance requirements applicable in this test. It is the view of the Committee that this technology is not subject to performance change in use and that maintenance tolerances applied in the conduct of this test are technically sound and equitable. It is on this basis that the Committee recommends that section T. Tolerances be amended by adding the following new paragraph:

T.1.9. TO WARM-UP TIME TESTS. - Applicable tolerances shall be applied.

(Item 302-1 was adopted)

302-2            S.2.1.5. TARE MECHANISM

The Committee received a comment from the NTATF that there was no apparent technical or economic reason for a weighing system to be equipped with a tare division value less than the value of the scale division. The only exception is a monorail scale since these devices have few scale divisions (usually 1000) and the tare values are usually constant at a weight value not equal to a scale division.

The Committee was also requested to provide appropriate design constraints for devices designed to automatically clear an entered tare value.

In response to these two important issues the Committee recommends the following code amendments:

Amend S.2.1.4. For monorail scale as follows:

S.2.1.4. ~~FOR ON MONORAIL SCALES.-~~ On a monorail scale equipped with digital indications, means shall be provided for setting the zero-load balance and any tare value of less than five percent of the scale capacity to within 0.02% of scale capacity. On an in-motion system, means shall be provided to automatically maintain these this conditions. [Added 1974 and Amended 1976, 1982]

Amend S.2.1.5. Tare Mechanism as follows:

S.2.3. ~~S-2-i-5-~~ TARE-MECHANISM.- On any scale, (except a monorail scale equipped with digital indications) the value of the tare division shall be equal to the value of the scale division.\* The tare mechanism shall operate only in a backward direction (that is, in the direction of underregistration) with respect to the zero load balance condition of the scale. On a device designed to automatically clear any tare value entered, means must be provided to prevent the clearing of tare until a complete transaction has been indicated.\* (\*Non retroactive as of January 1, 1983)

Note: On a computing scale this would require the input of a unit price and the display of the unit price and the computed positive total price at a readable equilibrium. On other devices it would require a weighing operation which includes a tare, net, and gross weight determination.

Add a new paragraph to read:

S.2.3.1. ON MONORAIL SCALES EQUIPPED WITH DIGITAL INDICATIONS.- On a monorail scale equipped with digital indications means shall be provided for setting any tare value of less than five percent of the scale capacity to within 0.02% of scale capacity. On an in-motion system means shall be provided to automatically maintain this condition.

Renumber paragraphs S.2.3. through S.2.6. to S.2.4. through S.2.7.

(Item 302-2 was adopted)

302-3 S.2.4.1. DAMPING MEANS/ELECTRONIC ELEMENTS

The Committee received comment that there seemed to be a dichotomy between this paragraph and paragraph S.2.1.2. Zero Load Adjustment/ On Scales Used In Direct Sales, as applied to livestock scales. That is, on a livestock scale the maximum allowable motion for the operation of the semiautomatic zero setting mechanism (push-button zero) is one scale division and the maximum allowable motion for the operation of the



printing mechanism is three scale divisions. It is the view of the Committee that the requirements as they are at present are correct for the following reasons:

- a) In the weighing of livestock, the movement of the animals on the scale produces a motion so that if the maximum allowable motion for the printing mechanism were reduced to one scale division, a printing would be extremely difficult. Thus the three scale division value is necessary.
- b) The one division limit for the zero setting mechanism is to prevent the operator from rezeroing a part of the load during a weighing operation. It is possible that during the loading process prior to the entire load being applied (only one animal for example) an equilibrium within plus or minus three scale divisions could be attained allowing the operator to operate the zero setting mechanism. This action would result in a weight indication less than the weight of the load.

It is on this basis that the Committee recommends no change from the present status, and hopes that this explanation will aid the Conference in interpreting these paragraphs.

(Item 302-3 was adopted)

#### 302-4 S.6. MARKING REQUIREMENTS

Among the suggestions received from the NTATF, was a recommendation that this section be amended to require the value of the scale division be marked on any device so constructed that this value was not immediately apparent. The Office of Weights and Measures in the conduct of its prototype examination program has consistently required this marking.

The Committee recommends that this section be amended by adding the following new nonretroactive paragraph:

S.6.2. VALUE OF THE SCALE DIVISION. - The value of the scale division shall be conspicuously marked adjacent to the weight display on any scale so constructed that the value of the scale division is not immediately apparent. This value shall be marked with the nominal capacity in the following manner as appropriate:

Capacity: 100,000 x 20 lb  
Capacity: 30 x .01 lb

On multi-range devices or devices capable of indicating in two or more units, each range and unit shall be marked.

(Item 302-4 was adopted)

302-5      UR.1. SELECTION REQUIREMENTS

The Committee reviewed, once again, the many problems confronting the official in determining the appropriateness of a device selected by a dealer in retail precious metals trade. The Committee views the guidelines that have been circulated and the discussions held at local and regional meetings as extremely helpful; they have resulted in a clearer understanding of the problem. However, it does feel that a requirement specifying the maximum value of the scale division would aid not only weights and measures officials, but sellers and users of this equipment as well. Therefore, the Committee recommends code amendment by adding the following new paragraph:

UR.1.1.1. FOR JEWELERS SCALES.- The value of the scale division shall not be greater than 1/50 (2%) of the smallest quantity to be weighed.

The Committee also recommends the following editorial changes.-

- (a) Renumber the remaining UR's.
- (b) Throughout this section, delete the term "smallest unit" and insert the term "scale division".

(Item 302-5 was defeated)

302-6      UR.2.6.1. APPROACHES/TO VEHICLE SCALES

The Committee received a comment that the word "slightly" as it appears in subparagraph (c) is not definitive and should be quantified. The Committee agrees and recommends that this paragraph be amended to read:

- (c) not less than 10 feet of any approach adjacent to the platform shall be constructed of concrete or similar durable material to insure that this portion remains smooth and level and in the same plane as the platform. However, grating of sufficient strength to withstand all loads may be installed in this portion: [Amended 1982]

(A motion was made to amend this item by replacing the wording in the final report with the wording that appeared in the interim meeting report. A motion to debate passed. The motion on the amendment failed. A motion to table this item passed, thus this item was referred back to the Committee.)

302-7      PRECISION BALANCES

The Committee received several well documented comments concerning the application of certain requirements to precision balances and the probable need for more specific criteria. It is the view of the Committee that the present code does not adequately cover balances, and that Code revision is needed. The most practical solution is separating

scales into classes according to the value of the scale division and the number of scale divisions. This concept is presented in the revised scale code draft which appears in Item 302-14 of this report. This is another example of the practicality of the principles expressed in that draft. It is felt that a thorough study of these principles will result in a recognition of the many advantages of that system.

Since the Committee is not recommending Conference action on that item in its entirety this year, the following course of action is recommended. When precision balances which fit Class I and II are being officially examined, due regard should be given to the appropriateness of each code requirement. The intended use of the equipment is especially important, specifically with respect to design constraints intended to reduce fraudulent operation, since in most instances the highest concern of the users in laboratories is accuracy and fraud is not even considered. Thus, it is evident that exceptions to the code will be necessary.

(Item 302-7 was adopted)

#### 302-8 MENU SERVICE SCALES.

During its deliberations the technical subcommittee on scales of the NTATF discussed the design and application of devices used to weigh prepared foods in restaurants. As a result two issues were referred to the Committee. One is the appropriate value of the scale division, the other is the basis for computing the sales price. Since these devices are presently in use in several States and the possibility exists that their use could expand to other jurisdictions, the Committee presents the following rationale for the design and operational features of this equipment.

- (a) The scale is for use in restaurants and cafeterias to weigh prepared food for consumption by customers. It allows a customer to select from bulk any amount of food to suit his own appetite. Examples of particular foods are salads, french fries, onion rings, and sandwich makings such as sliced meats, cheeses, lettuce, and tomato. Since the design is not considered appropriate for supermarket use, it is required to be conspicuously marked "For Menu Service Only."
- (b) Since most all sales are in amounts less than one pound, it is considered appropriate to have scale divisions in units of ounces rather than pounds. Thus, unit prices are expressed in terms of price per ounce. It is believed that prices per ounce such as 10¢, 11¢, 19¢, etc. rather than prices per pound such as \$1.60, \$1.76, or \$3.04, etc. are easier for a customer to deal with and do in fact facilitate value comparisons.
- (c) The appropriate value for each scale division is 0.05 ounce for several reasons. An equivalent value expressed in pounds is 0.003125. Since that value (0.003125 pound) is

impossible to utilize as a real scale division, it would have to be rounded to 0.005 pound. In doing so, the resolution is increased almost two times and also results in dealing with three decimal places rather than two.

A practical example of the result is as follows:

If a customer "built" a sandwich which weighed 5.25 ounces and was priced at 23¢ per ounce the display would read,

$$5.25 \text{ oz} @ .23/\text{oz} = \$1.21.$$

The same values expressed in terms of pounds would be,

$$.328 \text{ lb} @ \$3.68/\text{lb} = \$1.21.$$

If the value of the scale division in this example were to be 0.005 lb the display would read,

$$.330 \text{ lb} @ \$3.68/\text{lb} = \$1.21.$$

- (d) Because the error that can result in random weighing can be large due to the scale division value, the device should not be used to weigh loads less than 20d (1 ounce), and the scale should be so marked.
- (e) Although the scale will seldom if ever be used to weigh amounts greater than one or two pounds, it is considered appropriate to have a scale capacity of 160 ounces (10 pounds). This allows existing weighing elements of that magnitude to be used; a new design is unnecessary thus realizing a more efficient marketing and measurement system.

To eliminate the need for interpretations of existing requirements, the Committee recommends code amendment as follows:

Add new User Requirement to read:

UR.1.1.2. FOR MENU SERVICE SCALES.- The value of the scale division shall be not greater than 0.05 ounce.

Amend S.1.6.3. CUSTOMERS INDICATIONS by adding the following to the end of the paragraph.

..., except on menu service scales, which shall compute and display unit prices in terms of a whole ounce.

Add a definition as follows:

*menu service scale.* a scale designed, marked, and used to weigh one or more elements comprising a meal for consumption on the premises.

(Item 302-8 was defeated)



302-9      RANDOM LABELS BY COUNT

Prepackaging of produce is common and many produce items are properly sold by count. Supermarkets often use a label produced by a prepackaging scale for this purpose. When the number of items included in the package cannot readily be determined visually by the customer or the package contains six items or more, the count must be declared on the label.

The Committee has been requested to express its view with respect to the design of a random label used for both weight and count. The committee offers the following criteria for the evaluation of the format of such a label.

- (a) The quantity block must be headed with the words "Net Weight/Count". If the printer does not print the specific weight unit, the preprinted label must include this information; for example, pound, lb, or kg.
- (b) The count must be printed in the quantity block.
- (c) The count must be printed as an integer without a decimal point, and modified with the word or symbol for pieces (pcs) or count (ct).
- (d) The total package price must appear in the total price block.
- (e) When labeled by count the unit price block is to remain blank, unless the unit price is valid. Examples are:

<u>QTY</u>	<u>U.P.</u>	<u>TOTAL PRICE</u>
6 pcs	0.50	\$3.00
5	5/.89	\$0.89

Since these labels are not by definition random labels, additionally, the label must meet the requirements of paragraph S.1.7.2, and the Model Packaging and Labeling Regulation.

(Item 302-9 was adopted)

302-10      SCALES USED FOR WEIGHING GRAIN

During the interim meeting representatives of the Federal Grain Inspection Service made presentations concerning their desire for cooperation with the Conference in all areas of interaction. Specific proposals were made in two areas.

The first dealt with Automatic Bulk Weighing Systems (grain). This matter is explained in the following letter received by the Committee:

"The Federal Grain Inspection Service (FGIS) through this letter to the Specifications and Tolerances Committee, formally requests the committee give serious consideration to the following proposal concerning "Automatic Electronic Bulk Weighing Systems (Grain)".

Before the next NCWM Conference Interim Meetings the FGIS intends to draft an additional proposed section to be added to the present scale code of NBS Handbook 44. We hope to present it to the S&T Committee for their consideration at its interim meeting in January 1983.

If the committee, after study and deliberation, finds the proposal too bulky to be included in the scale code they may want to propose to the Conference that the FGIS document be considered as a stand alone or additional code to be included in the Handbook, such as the Belt-Conveyor Scale Code.

FGIS makes this request with the realization that our agency is no longer "new", but has now gained much experience in specific areas not normally encountered by most Weights and Measures jurisdictions. We also view our first formal contribution to the NCWM is in the spirit of present and future wholehearted cooperation.

Our ultimate goal is to eliminate the FGIS regulations in this area, thus establishing the desired uniformity needed to assure equity in Grain Trade. A positive action or recommendation by the Committee to the Conference would indicate to FGIS that the Conference is in a position needed to assure the nationwide promulgation within the Weights and Measures community. In this area FGIS would expect guidance from the conference, and expects to draw from the expertise of the S&T Committee and any other Weights and Measures jurisdictions that could provide valuable input.

FGIS realizes editorial changes will undoubtedly be necessary due to formal NCWM requirements, which FGIS may not be fully aware of. In this light FGIS would request the committee to permit FGIS to take advantage of the close proximity between our agency and NBS Headquarters to coordinate any changes needed to meet the conference format.

We had intended to provide the committee with a draft copy of our proposed code or section at this year's interim meeting. However, the time factor was such that a meaningful document could not be drafted at this time. The Federal Grain Inspection Service wishes to thank the Committee for this opportunity to present our plan."

The Committee acknowledges with thanks this offer of cooperation and will, during the ensuing year, work diligently with FGIS representatives in the development of appropriate requirements for bulk weighing systems.

The second dealt with grain test scales. It was indicated that there are now new devices which do not meet T.3.5. and UR.1.2. but are considered appropriate. The committee agrees with the proposals and recommends the following:

Amend T.3.5. as follows:

T.3.5. FOR GRAIN-TEST SCALES.- The basic maintenance and acceptance tolerances shall be as shown in the following table:

BASIC TOLERANCE VALUES FOR GRAIN-TEST SCALES.  
(APPLICABLE TO INCREASING AND DECREASING LOAD TESTS.)

CLASS II

Test Load		Maintenance Tolerances	Acceptance Tolerances
from	to and including	in scale div (d)	in scale div (d)
min	5000d	1	0.5
5000d	20 000d	2	1.0
20 000d	50 000d	3	1.5

CLASS III

from	to and including	in scale div (d)	in scale div (d)
min	500d	1	0.5
500d	2000d	2	1.0
2000d	10 000d	3	1.5

[Amended 1979]

Amend UR.1.2. as follows:

UR.1.2. FOR GRAIN-TEST SCALES ONLY.- The design of a scale selected for use as a grain test scale shall be either Class II or Class III as follows:

CLASS II

Scale Division (d)	Number of Divisions (n = Max/d)		Minimum Capacity (Min)
	Minimum	Maximum	
1.0 mg ≤ d ≤ 100 mg	10 000	50 000	50d

### Class III

Scale Division (d)	Number of Divisions (n = Max/d)		Minimum Capacity (Min)
	Minimum	Maximum	
0.1 g $\leq$ d $\leq$ 1.0 g	500	10 000	20d

Note: The symbol  $\leq$  means "less than or equal to." Thus, the statement "1.0 mg  $\leq$  d  $\leq$  100 mg" is read, "1.0 mg is less than or equal to d and d is less than or equal to 100 mg."

Add a definition for Automatic Bulk Weighing Systems as follows:

*automatic bulk weighing system.* A weighing system adapted to the automatic weighing of bulk commodities in successive drafts of predetermined amounts, automatically recording the no load and loaded weight values and accumulating the net weight of each draft.

(Item 302-10 was adopted)

#### 302-11 MULTI RANGE SCALES

A multi range scale is a device that can automatically or manually change the capacity and the value of the scale division. Devices with these capabilities are presently being manufactured and it is anticipated that the production and use of these devices will increase. Eventually there will be a need for specific requirements applicable to these devices. Until this has been accomplished the Committee offers the following guidelines for the design and test of this equipment.

- (a) Must meet existing code tables and tolerances, and/or proposed tables and tolerances.
- (b) The number of scale divisions for each range is determined by dividing the scale capacity ( $Cap_R$ ) by the value of d for each range.

Examples:

$Cap_R$	d	n
0 - 3 kg x 1 g		3000/1 = 3000
3+ - 6 kg x 2 g		6000/2 = 3000
6+ - 15 kg x 5 g		15000/5 = 3000

- (c) For manual ranging devices, all requirements shall apply to each range individually, the range in use shall be conspicuously indicated, and the range selected cannot be changed during a weighing operation or with a load on the load receiving element unless the capacity of a range has been exceeded. The zero indication should not change when different ranges are selected



- (d) In the application of S.1.4.1. Capacity Indication for automatic ranging devices the maximum capacity applies and for manual ranging devices the capacity of each range applies.
- (e) In the application of S.1.1., S.2.1.2., and S.2.1.3., the smallest value of d applies.
- (f) In the application of S.2.4.1. the value of d in use applies.
- (g) Devices equipped with a tare capability must indicate and record values that meet the equation, gross = net + tare.
- (h) Devices equipped with semi automatic (push button) tare must meet tolerances for any indicated load after a maximum tare has been taken, and the maximum tare capacity shall not exceed the capacity of the first range.
- (i) The device must indicate the same value of d for decreasing loads as indicated for increasing loads.
- (j) The shift test shall be conducted at  $1/2 \text{ cap}_R$  for each range.
- (k) The capacity and value of d for each range shall be conspicuously marked on the device.

(Item 302-11 was adopted)

#### 302-12 DYNAMIC WEIGHING OF MOTOR TRUCKS FOR ENFORCEMENT PURPOSES

This subject was included in the Report of the Committee to the 66th National Conference on Weights and Measures in Item 303-6. The information in this item was for the most part a presentation and a proposal made to the Committee during its interim meeting. In the report to the Conference, the Committee expressed the view that this methodology had merit, made no recommendation for action, and solicited comments from all interested parties during the year.

The Committee has received a number of comments mostly supportive, a few in opposition. The objections were based on a relatively few experiences in which it was stated that the proposed tolerance of  $\pm 2\%$  was not achievable. Proponents countered that the problem was excessive speed of the vehicles during the weighing process, and that if speeds were controlled to less than 5 mph the 2% tolerance (the same as applied to wheel-load weighers) is achievable.

The Committee is aware that the increased interest is a result of the Federal Highway Administration's urging the States to actively pursue a highway weight enforcement program; otherwise the availability of Federal Funds may be jeopardized. There is no doubt that if vehicles can be weighed accurately in motion a substantial savings in time and money will result for all parties. The key, of course, is accuracy and equity for all concerned.

The Committee feels that there is merit in this proposal and has received a limited amount of data indicating that these devices can meet  $\pm 2\%$  under certain conditions. There is a need, however, for some specific design criteria applicable to these devices and the Committee will have prepared for action by the 1983 Conference the necessary recommended amendments to H-44.

(Item 302-12 was adopted)

The Committee, in its report to the Conference in July, will recommend action by the Conference, based on all of the information available to it at that time.

#### 302-13 COUPLED IN MOTION WEIGHING OF RAILROAD CARS

The Committee received a proposal that there was a need for the recognition of a weighing system used to weigh unit trains only without specifying limits on the weights of individual cars as presently required by paragraph T.3.8.3.(b). The proposal is as follows:

"In the transportation of bulk materials by rail, increasing use is being made of long 80-100 car trains. The high capital and operating costs of these trains make it imperative that no unavoidable delays are encountered. Therefore, many of these trains are weighed on coupled-in-motion track scales.

In most instances these trains run between one consignor and one consignee. Both the consignor and consignee are primarily interested in the total net weight of product in the train. The only party interested in the individual car weights is the transporting railroad. Its interest is to determine if any cars are overweight. However, the accuracy required for this is of a different order than that for the consignor/consignee requirements.

At present a coupled-in-motion track scale has to meet the requirements of H-44, Para T.3.8.3.(b). Traditionally this has been interpreted as using a 10-car test train with 10 test runs to obtain 100 car weights. To meet these tests, scale manufacturers have to insist on 10-car lengths of effectively straight and level track on either side of the scale. This can be very expensive for the purchaser, in some cases prohibitively expensive, because of the additional track work required. It is also a relatively ineffective test in meeting the objectives of the consignor and consignee in that this method of testing does not ensure an accurate total train net weight.

The current provisions of H-44 can be interpreted as using, say, a 100-car train to obtain the 100 car weights. In fact, some railroads and some consignees do insist on testing in this manner. This is a good method of testing in that it is an "as used" method and allows the system to be adjusted to provide an accurate total train weight. The problem with this, however, is that it is

almost impossible to meet current H-44 requirements when tested in this manner. This is not due to any basic scale inaccuracies, but is due to the unavoidable force between couplers on long trains. These inaccuracies can be compounded by the increasing use of interlocking couplers which have a tendency to bind or lock up solid.

Many tests have been carried out, including tests by the AREA Committee 34 which clearly demonstrates that excellent total train accuracies can be obtained with long trains even though individual car errors are in excess of H-44 tolerances. Largely as a result of these tests plus an understanding of the above problems, the AREA intends to introduce into their scale handbook, a separate tolerance for unit train applications. The AREA Scale Handbook for track scales is accepted and adopted by the Weighing & Inspection Bureaus, i.e., SWIB, EWIB, WWIB. This means that virtually all the organizations involved with certifying and overseeing the use of railroad track scales accept the case for and favor a unit train tolerance.

There is considerable support among industry users for a unit train tolerance. In addition to a total train weight accuracy of 0.2% being acceptable to them, they see it providing the following advantages:

1. Permits testing and calibration as used
2. Less costly installations
3. Reduced testing time and costs
4. The ability to weigh in locations where current H-44 individual car requirements cannot be met, but will give good total train accuracy.

Recording of individual car weights is, however, an essential requirement for detecting overloaded cars. The desirability of a unit train tolerance has been acknowledged in virtually all other countries where rail is used to carry bulk commodities in single consignor/consignee situations. Therefore, the adoption of a unit train tolerance would be in line with International Weights and Measures practices.

#### Proposed Amendment to H-44

T.3.8.3. FOR COUPLED-IN-MOTION SCALES USED FOR INDIVIDUAL CAR WEIGHTS.- The basic maintenance and acceptance tolerances shall be:

- (a) The difference between the motion gross weight value and the static gross weight value of the test train shall not exceed two pounds per 1000 pounds (0.2 percent).
- (b) The difference between the motion gross weight values and the static gross weight value on 100 car weights shall meet the following conditions:

- (1) At least 70 percent of the individual car weight differences shall be within plus or minus 0.2 percent.
- (2) Not more than 5 percent of the individual car weight differences shall exceed plus or minus 0.5 percent.
- (3) No individual car weight differences shall exceed plus or minus 1.0 percent.

This means that at least 70 of the car weights must be within plus or minus 0.2 percent, that 25 car weight differences can be more than plus or minus 0.2 percent up to and including plus or minus 0.5 percent, and that 5 car weight differences can be more than plus or minus 0.5 percent up to and including plus or minus 1.0 percent. (Amended 1979)

T.3.8.4. FOR COUPLED-IN-MOTION SCALES USED FOR UNIT TRAIN WEIGHTS.-  
The basic maintenance and acceptance tolerances shall be as follows:

The sum of the static versus the sum of the motion weights of the test cars in a coupled-in-motion test shall not differ by more than two pounds per 1000 pounds (0.2 percent).

A unit train is defined as a number of contiguous cars carrying a single commodity from one consignor to one consignee. The number of cars shall be determined by agreement between consignor/consignee and the operating railroad."

The Committee feels that there is merit to this proposal and recommends adoption of the recommended paragraphs:

(Item 302-13 was adopted)

#### 302-14 SCALE CODE FORMAT AND TOLERANCES

Throughout the year the Committee reviewed at length all of the material available concerning tolerances and other criteria. This resource information was both national and international in scope. The Committee is especially grateful for the fine work of the SMA Expanded Subcommittee on Tolerances. Not only did this subcommittee discuss broadly appropriate tolerances for the U.S., which would harmonize with existing and under consideration international tolerances, but it also developed a new approach to sensitivity and discrimination and set forth new criteria for certain important environmental factors such as temperature. It also recommended a new approach to the format of the code that will certainly result in an easier to use document.

The Committee has developed a new scale code which they view as the best possible solution for all concerned. The Committee is well aware that the Conference has not had the benefit of participation in all of this effort, consequently is not in a position at this time to adopt changes with such seemingly far reaching impact.



Therefore, the Committee recommends that State and Regional Conferences continue to schedule informative presentations that objectively explore all the issues on tolerances. When the Committee is certain that the Conference has sufficient time to review all those considerations, it will then recommend Conference action.

The Committee does believe that the Conference can act now on the Application, Specification, and Notes (except N.1.2.) sections of the Code as presented. There is no material change in these requirements (except S.1.2., N.2., and N.3.) but rather a reordering of them in a sequence more consistent with the use of the Code. Since beams and poises are indicating elements, the paragraphs directed to them have been moved up front with the other paragraphs dealing with indicating elements. Wherever possible, requirements applicable to digital equipment have been separated from those applicable to analog equipment, so that when digital equipment is being examined it is only necessary to refer to specific applicable paragraphs. This can also be more readily accomplished by those using the Handbook by noting in the margin of each paragraph heading a specific marking which would indicate the kind of equipment to which each paragraph applies. An example is: "A" for analog, "D" for digital, "B" for both, "M" for mechanical, "E" for electronic, and "M.E." for both. The Committee is aware that changes will need to be made to the UR and definitions sections as well but time was insufficient to include them at this time.

Thus the Committee presents the new code, recommending action on the Application, Specifications, and Notes (except N.1.2.) sections only.

Certain of these paragraphs are subject to amendment by action of this Conference as referenced in previous scale code items. Appropriate changes will be made consistent with Conference action on these items.

## SEC. 2.20. SCALES

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### A. APPLICATION

A.1. GENERAL.- This code applies to all types of weighing devices other than belt-conveyor scales. The code comprises requirements that are generally applicable to all weighing devices, and specific requirements that are applicable only to certain types of weighing devices. [Amended 1972]

A.2. WHEEL-LOAD WEIGHERS AND AXLE-LOAD SCALES.- The requirements for wheel-load weighers and axle-load scales apply only to such scales in official use for the enforcement of traffic and highway laws or for the collection of statistical information by government agencies.

A.3. - See also General Code requirements.

## S. SPECIFICATIONS

### S.1. DESIGN OF INDICATING AND RECORDING ELEMENTS AND OF RECORDED REPRESENTATIONS

S.1.1. ZERO INDICATION.- Provision shall be made on a scale equipped with indicating or recording elements to either indicate or record a zero balance condition, and on an automatic-indicating scale or balance indicator to indicate or record an out-of-balance condition on both sides of zero.

S.1.1.1. DIGITAL INDICATING ELEMENTS.- A digital zero indication shall represent a balance condition that is within plus or minus one-half the value of the scale division. On a digital indicator equipped with an auxiliary or supplemental "center of zero" indicator, this indicator shall define a zero balance condition to  $\pm 1/4$  of a scale division or better. [Amended 1990]

S.1.2. VALUE OF THE SCALE DIVISION (d), - The value of the scale division expressed in a unit of weight, shall be according to the following formula where k represents a whole number, positive, negative, or equal to zero:

$$1 \times 10^k, 2 \times 10^k, \text{ or } 5 \times 10^k$$

or, a binary submultiple of a unit of weight.

Examples: scale divisions may be .01, .02, .05; .1, .2, or .5; 1, 2, or 5; 10, 20, or 50.

or, scale divisions may be  $1/2$ ,  $1/4$ ,  $1/8$ ,  $1/16$ , etc.

### S.1.3. GRADUATIONS

S.1.3.1. LENGTH.- Graduations shall be so varied in length that they may be conveniently read.

S.1.3.2. WIDTH.- In any series of graduations, the width of a graduation shall in no case be greater than the width of the minimum clear interval between graduations, and the width of main graduations shall be not more than 50 percent greater than the width of subordinate graduations. Graduations shall in no case be less than 0.006 inch in width.

S.1.3.3. CLEAR INTERVAL BETWEEN GRADUATIONS.- The clear interval shall be not less than 0.02 inch for graduations representing money values and not less than 0.03 inch for other graduations. If the graduations are not parallel, the measurement shall be made

- (a) along the line of relative movement between the graduations and the end of the indicator, or
- (b) if the indicator is continuous, at the point of widest separation of the graduations.

#### S.1.4. INDICATORS.

S.1.4.1. SYMMETRY.- The index of an indicator shall be symmetrical with respect to the graduations with which it is associated and at least throughout that portion of its length that is associated with the graduations.

S.1.4.2. LENGTH.- The index of an indicator shall reach to the finest graduations with which it is used, unless the indicator and the graduations are in the same plane, in which case the distance between the end of the indicator and the ends of the graduations, measured along the line of the graduations, shall be not more than 0.04 inch.

S.1.4.3. WIDTH.- The width of the index of an indicator in relation to the series of graduations with which it is used shall be not greater than

- (a) the width of the widest graduation,
- (b) the width of the minimum clear interval between weight graduations, and
- (c) three-fourths of the width of the minimum clear interval between money-value graduations.

When the index of an indicator extends along the entire length of a graduation, that portion of the index of the indicator that may be brought into coincidence with the graduation shall be of the same width throughout the length of the index that coincides with the graduation.

S.1.4.4. CLEARANCE.- The clearance between the index of an indicator and the graduations shall in no case be more than 0.06 inch.

S.1.4.5. PARALLAX.- Parallax effects shall be reduced to the practicable minimum.

#### S.1.5. WEIGHBEAMS

S.1.5.1. NORMAL BALANCE POSITION.- The normal balance position of the weighbeam of a beam scale shall be horizontal.

S.1.5.2. TRAVEL.- The weighbeam of a beam scale shall have equal travel above and below the horizontal. The total travel of the weighbeam of a beam scale in a trig loop or between other limiting stops near the weigh-beam tip shall be not less than the minimum travel shown in table 1. When such

limiting stops are not provided, the total travel at the weighbeam tip shall be not less than 8 percent of the distance from the weigh beam fulcrum to the weighbeam tip.

TABLE 1.- MINIMUM TRAVEL OF WEIGHBEAM OF BEAM SCALE BETWEEN LIMITING STOPS.

Distance from weighbeam fulcrum to limiting stops	Minimum travel between limiting stops
Inches	Inch
12 or less.....	0.4
13 to 20, incl.....	0.5
21 to 40, incl.....	0.7
Over 40.....	0.9

S.1.5.3. SUBDIVISION.- A subdivided weighbeam bar shall be subdivided by means of graduations, notches or a combination of both. Graduations on a particular bar shall be of uniform width and perpendicular to the top edge of the bar. Notches on a particular bar shall be uniform in shape and dimensions and perpendicular to the face of the bar. When a combination of graduations and notches is employed, the graduations shall be so positioned in relation to the notches as to indicate notch values clearly and accurately.

S.1.5.4. READABILITY.- A subdivided weighbeam bar shall be so subdivided and marked, and a weighbeam poise shall be so constructed, that the weight corresponding to any normal poise position can easily and accurately be read directly from the beam, whether or not provision is made for the optional recording of representations of weight.

S.1.5.5. CAPACITY.- On an automatic-indicating scale having a nominal capacity of 30 pounds or less and used for direct sales to retail customers,

- (a) the capacity of any weighbeam bar shall be a multiple of the reading-face capacity,
- (b) each bar shall be subdivided throughout or shall be subdivided into notched intervals each equal to the reading-face capacity, and
- (c) the value of any turnover poise shall be equal to the reading-face capacity.

S.1.5.6. POISE STOP.- Except on a steelyard with no zero graduation, a shoulder or stop shall be provided on each weighbeam bar to prevent a poise from traveling and remaining back of the zero graduation.



#### S.1.6. POISES.

S.1.6.1. GENERAL.- No part of a poise shall be readily detachable. A locking screw shall be perpendicular to the longitudinal axis of the weighbeam and shall not be removable. Except on a steelyard with no zero graduation, a poise shall not be readily removable from a weighbeam. The knife edge of a hanging poise shall be hard and sharp and so constructed as to allow the poise to swing freely on the bearing surfaces in the weighbeam notches.

S.1.6.2. ADJUSTING MATERIAL.- The adjusting material in a poise shall be securely enclosed and firmly fixed in position, and if softer than brass it shall not be in contact with the weighbeam.

S.1.6.3. PAWL.- A poise, other than a hanging poise, on a notched weighbeam bar shall have a pawl that will seat the poise in a definite and correct position in any notch, wherever in the notch the pawl is placed, and hold it there firmly and without appreciable movement. That dimension of the tip of the pawl that is transverse to the longitudinal axis of the weighbeam shall be at least equal to the corresponding dimension of the notches.

S.1.6.4. READING EDGE OR INDICATOR.- The reading edge or indicator of a poise shall be sharply defined, and a reading edge shall be parallel to the graduations on the weighbeam.

S.1.7. CAPACITY INDICATION, WEIGHT RANGES, AND UNIT WEIGHTS.- Except for single or multi-revolution dial scales not equipped with unit weights, an indicating or recording element shall not display or record any values when the gross platform load is in excess of 105% of the capacity of the system. The total value of weight ranges and of unit weights in effect or in place at any time shall automatically be accounted for on the reading face and on any recorded representation.

#### S.1.8. FOR COMPUTING SCALES ONLY.

S.1.8.1. MONEY-VALUE GRADUATIONS.- The value of the graduated intervals representing money values on a computing scale with analog indications shall be as follows:

- (a) Not more than 1 cent at all unit prices of 25 cents per pound and less.
- (b) Not more than 2 cents at unit prices of 26 cents per pound through \$1.25 per pound. (Special graduations defining 5-cent intervals may be employed, but not in the spaces between regular graduations.)
- (c) Not more than 5 cents at unit prices of \$1.26 per pound through \$3.40 per pound.

- (d) Not more than 10 cents at unit prices above \$3.40 per pound.

Value figures and graduations shall not be duplicated in any column or row on the graduated chart. (See also Sec. 1.14; G-S.5.5., and S.1.8.2.)

S.1.8.2. MONEY-VALUE COMPUTATION.- A computing scale with analog quantity indications used in retail trade may compute and present digital money values to the nearest quantity graduation when the value of the minimum graduated interval is 0.01 pound or less. (See also Sec. 1.14; G-S.5.5.)

S.1.8.3. CUSTOMER'S INDICATIONS.- Weight indications shall be shown on the customer's side of computing scales when these are used for direct sales to retail customers. *Computing scales equipped on the operator's side with digital indications, such as the net weight, price per pound, or total price, shall be similarly equipped on the customer's side (nonretroactive as of 1971).* Unit price displays visible to the customer shall be in terms of the price per pound and not in fractions or multiples of a pound. [Amended 1975]

S.1.8.4. RECORDED REPRESENTATIONS, POINT OF SALE SYSTEMS.- The sales information recorded by cash registers when interfaced with a weighing element shall contain the following information for items weighed at the checkout stand:

- (a) the net weight,<sup>1</sup>
- (b) the unit price,<sup>1</sup>
- (c) the total price, and
- (d) the product class or, in a system equipped with price look-up capability, the product name or code number.

S.1.9. FOR PREPACKAGING SCALES ONLY.

S.1.9.1. VALUE OF GRADUATED INTERVAL.- On a prepackaging scale, the graduated intervals representing weight values shall be uniform throughout the entire reading face, and any recorded representation shall present weight values identical with those on the reading face. [Made retroactive as of 1972]

S.1.9.2. LABEL PRINTER.- A prepackaging scale that, as part of the scale itself or of any auxiliary device attached thereto or used in connection therewith, produces a printed ticket to be used as the label for a package shall print all values digitally and of such size, style of type, and color as to be clear and conspicuous on the label. [Made retroactive as of 1972]

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<sup>1</sup>Weight values shall be identified by the word "pound," the symbol "lb", or the sign "#". [Added 1975 and amended 1976]

S.1.10. PROVISION FOR SEALING ADJUSTABLE COMPONENTS ON ELECTRONIC DEVICES.- *Provision shall be made for applying a security seal in a manner that requires the security seal to be broken before an adjustment can be made to any component affecting the performance of the device. (Nonretroactive as of January 1, 1979). [Added 1978]*

S.2. DESIGN OF BALANCE, TARE, LEVEL, DAMPING, AND ARRESTING MECHANISMS.

S.2.1. ZERO-LOAD ADJUSTMENT

S.2.1.1. GENERAL.- A scale shall be equipped with means by which the zero-load balance may be adjusted, and any loose material used for this purpose shall be so enclosed that it cannot shift in position in such a way that the balance condition of the scale is altered.

S.2.1.2. ON SCALES USED IN DIRECT SALES.- A manual zero setting mechanism (except on a digital scale with an analog zero adjustment mechanism with a range of not greater than one scale division) shall be operable or accessible only by a tool outside of and entirely separate from this mechanism, or enclosed in a cabinet. Except on a Jewelers scale, a balance ball shall either meet this requirement or not itself be rotatable.

A semi-automatic zero setting mechanism shall be operable or accessible only by a tool outside of and entirely separate from this mechanism or enclosed in a cabinet, or shall be operable only when the indication is stable within:

(a) Plus or minus 3 scale divisions for scales of more than 5000 pounds capacity in service prior to January 1, 1981 and for all axle load, railway track, and vehicle scales.

(b) Plus or minus 1 scale division for all other scales.  
[Amended 1981]

S.2.1.3. ON SCALES EQUIPPED WITH AN AUTOMATIC ZERO SETTING MECHANISM.- *Under normal operating conditions the maximum load that can be "rezeroed" when all at once either placed on or removed from the platform shall be:*

(a) *For bench, counter, and livestock scales - 0.6 scale division,*

(b) *For axle load, railway track, and vehicle scales - 3.0 scale divisions,*

(c) *For all other scales - 1.0 scale division.*

*(Nonretroactive and enforceable as of January 1, 1981)*  
[Amended 1981]

S.2.1.4. FOR MONORAIL SCALES.- On a monorail scale equipped with digital indications, means shall be provided for setting the zero-load balance and any tare value of less than five percent of the scale capacity to within 0.02% of scale capacity. On an in-motion system, means shall be provided to automatically maintain these conditions. [Added 1974 and Amended 1976]

S.2.1.5. TARE MECHANISM.- The tare mechanism shall operate only in a backward direction (that is, in the direction of underregistration) with respect to the zero-load balance condition of the scale.

S.2.2. BALANCE INDICATOR.- On a balance indicator consisting of two indicating edges, lines, or points, the ends of the indicators shall be sharply defined and shall be separated by not more than 0.04 inch, measured horizontally, when the scale is in balance.

S.2.2.1. ON DAIRY-PRODUCT-TEST, GRAIN-TEST, JEWELERS, AND PRESCRIPTION SCALES ONLY [AMENDED 1979].- A dairy-product-test, grain-test, jewelers, or prescription scale shall be equipped with a balance indicator. If this consists of an indicator and a graduated scale that are not in the same plane, the clearance between the indicator and the graduations shall be not more than 0.04 inch.

S.2.3. DAMPING MEANS.- An automatic-indicating scale, and balance indicator, shall be equipped with effective means for damping the oscillations whenever such means are necessary to bring the indicating elements quickly to rest. [Amended 1972]

S.2.3.1. ELECTRONIC ELEMENTS.- Electronic indicating elements equipped with recording elements shall be equipped with effective means to permit the recording of weight values only when the indication is stable within:

(a) Plus or minus 3 scale divisions for scales of more than 5000 pounds capacity in service prior to January 1, 1981 and for all axle load, railway track, livestock, and vehicle scales.

(b) plus or minus 1 scale division for all other scales. [Amended 1981]

The values recorded shall be within applicable tolerances.

S.2.3.2. ON JEWELERS AND PRESCRIPTION SCALES ONLY.- A jewelers or prescription scale shall be equipped with appropriate means for arresting the oscillation of the mechanism.

### S.3. DESIGN OF LOAD-RECEIVING ELEMENTS.



S.3.1. TRAVEL OF PANS OF EQUAL-ARM SCALE.- The travel between limiting stops of the pans of a nonautomatic-indicating equal-arm scale not equipped with a balance indicator shall be not less than the minimum travel shown in table 2.

TABLE 2.- MINIMUM TRAVEL OF PANS OF NONAUTOMATIC INDICATING EQUAL-ARM SCALE WITHOUT BALANCE INDICATOR.

Nominal capacity	Minimum
Pounds	travel of pans
	Inch
4 or less .....	0.35
5 to 12, incl.....	0.5
13 to 26, incl.....	0.75
Over 26.....	1.0

S.3.2. DRAINAGE.- A load-receiving element intended to receive wet commodities shall be so constructed as to drain effectively.

S.3.3. SCOOP COUNTERBALANCE.- A scoop on a scale used for direct sales to retail customers shall not be counter-balanced by a removable weight. A permanently attached scoop-counterbalance shall indicate clearly on both the dealer's and customer's sides of the scale whether it is positioned for the scoop to be on or off the scale.

#### S.4. DESIGN OF WEIGHING ELEMENTS.

S.4.1. ANTIFRICTION ELEMENTS.- At all points at which a live part of the mechanism may come into contact with another part in the course of normal usage, frictional effects shall be reduced to a minimum by means of suitable antifricition elements, opposing surfaces and points being properly shaped, finished, and hardened. A platform scale having a frame around the platform shall be equipped with means to prevent interference between platform and frame.

S.4.2. ADJUSTABLE COMPONENTS.- An adjustable component such as a nose-iron, pendulum, spring, or potentiometer (but not a component for adjusting level or zero-load balance) shall be held securely in adjustment and shall not be adjustable from the outside of the scale. The position of a nose-iron on a scale of more than 2000 lb capacity, as determined by the factory adjustment, shall be accurately, clearly, and permanently defined. [Amended 1975]

S.4.3. MULTIPLE LOAD-RECEIVING ELEMENTS.- *Except for bench and counter scales, a scale with a single indicating or recording element, or a combination indicating-recording element, that is coupled to two or more load-receiving elements with independent weighing systems shall be provided with means to prohibit the activation of any load-receiving element (or elements) not in use, and shall be provided with automatic means to indicate clearly and definitely which load-receiving element (or elements) is in use. (Nonretroactive as of 1969.)*

S.5. MARKING REQUIREMENTS. (See also G-S.1.)

S.5.1. NOMINAL CAPACITY.- The nominal capacity shall be conspicuously marked as follows:

- (a) On any scale equipped with unit weights or weight ranges.
- (b) On any scale with which counterpoise or equal-arm weights are intended to be used.
- (c) On any automatic-indicating or recording scale so constructed that the capacity of the indicating or recording element or elements is not immediately apparent.  
[Amended 1978]
- (d) On any scale with a nominal capacity less than the sum of the reading elements.

S.5.2. MARKING-REQUIREMENTS--WEIGHING ELEMENTS.- *On a weighing element not permanently attached to an indicating element, there shall be clearly and permanently marked for the purposes of identification the name, initials, or trademark of the manufacturer, the manufacturer's designation that positively identifies the pattern or design, and the nominal capacity.*  
[Added and nonretroactive as of 1972]

S.5.3. FOR LIVESTOCK, VEHICLE, AND RAILWAY TRACK SCALES ONLY.- A livestock, vehicle, or railway track scale shall be marked with the maximum capacity of each section of the load-receiving element of the scale. Such marking shall be accurately and conspicuously presented on or adjacent to the identification or nomenclature plate that is attached to the indicating element of the scale.  
[Made retroactive as of 1979.]

S.5.4. FOR PREPACKAGING SCALES ONLY.- A prepackaging scale shall be conspicuously marked on the operator's side and on the opposite side with the words "For Prepackaging Use Only" or with a similar and suitable statement.

(See the footnote following the section on user requirements in the Scale Code.)

N. NOTES

N.1. TESTING PROCEDURES.

N.1.1. INCREASING-LOAD TEST.- The increasing load test shall be conducted on all scales with the test loads approximately centered on the load-receiving element of the scale, except on a scale having a nominal capacity greater than the total available known test load, in which case the available test load is used to greatest advantage by concentrating it, within prescribed load limits, over the main load supports of the scale.

N.1.2. DECREASING-LOAD TEST.- The decreasing-load test shall be conducted on automatic indicating scales and with test loads equal to the maximum test load at which the smallest tolerance value would apply; for example on a Class III scale at test loads equal to 4000d, 2000d, and 500d. The test load shall be distributed approximately evenly on the load receiving element of the scale.

N.1.2.1. ZERO BALANCE SHIFT.- A balance shift test shall be conducted on all scales after the removal of any test load. The balance should not change more than the minimum tolerance applicable. (See also G-UR.4.2.) [Added 1977]

N.1.3. SHIFT TEST.

N.1.3.1. ON BENCH OR COUNTER SCALES.- The shift test shall be conducted with a half-capacity test load centered successively at four points equidistant between the center and the front, left, back, and right edges of the load-receiving element.

N.1.3.2. ON DAIRY-PRODUCT-TEST SCALES.- The shift test shall be conducted with a test load of 18 grams, this load being successively positioned at all points at which a weight might reasonably be placed in the course of normal use of the scale.

N.1.3.3. ON EQUAL-ARM SCALES.- The shift test shall be conducted with a half-capacity test load shifted, as prescribed in N.1.3.1., on each pan, with an equal test load centered on the other pan.

N.1.3.4. ON VEHICLE SCALES.- The shift test shall be conducted with at least two different test loads successively distributed between the two load bearings (or other weighing elements) that support each section of the scale. [Amended 1972]

N.1.3.5. ON RAILWAY TRACK SCALES WEIGHING INDIVIDUAL CARS IN SINGLE DRAFTS.- The shift test shall be conducted with at least two different test loads, if available, distributed over, or to the right and left of, each pair of main levers or other weighing elements supporting each section of the scale. [Added 1972]

N.1.3.6. ON ALL OTHER SCALES EXCEPT CRANE SCALES AND HANGING SCALES.- The shift test shall be conducted on all other scales, except crane scales and hanging scales, with a half-capacity test load centered, as nearly as possible, successively at the center of each quarter of the load-receiving element, or with a quarter-capacity test load centered, as nearly as possible, successively over each main load support.

N.1.4. ZONE OF UNCERTAINTY TEST.- The zone of uncertainty test on digital instruments shall be conducted under controlled conditions in which environmental factors are reduced to the extent that they will not affect the results obtained. [Added 1974]

N.1.5. RATIO TEST.- A ratio test shall be conducted on all scales employing counterpoise weights and on nonautomatic-indicating equal-arm scales.

N.2. VERIFICATION (TESTING) STANDARDS.- Standard weights and masses used in verifying weighing devices shall comply with requirements of NBS Handbook 105-1 (Class F) or the tolerances expressed in Fundamental Considerations, paragraph 3.2. (i.e., 25% of the smallest tolerance applied)

N.3. MINIMUM TEST-WEIGHT LOAD FOR IN-SERVICE TESTS.

N.3.1. For devices of 100 pound capacity or less, 106% of device capacity.

N.3.2. For devices of more than 100 pound capacity.

N.3.2.1. For devices with the value of  $d$  equal to or less than 20 pounds, a test weight load not less than  $1000d$ , but not more than 106% of scale capacity.

N.3.2.2. For devices with the value of  $d$  more than 20 pounds, a test weight load not less than  $500d$ .

N.3.3. For Railway Track Scales, not less than 30,000 pounds.

N.3.3.1. For coupled in motion tests, a test train of 10 cars or more, yielding at least 100 car weights.

N.4. NOMINAL CAPACITY OF PRESCRIPTION SCALES.- In the absence of information to the contrary the nominal capacity of a prescription scale shall be assumed to be  $1/2$  apothecaries ounce. [Amended 1972]

#### T. TOLERANCES [MAXIMUM PERMISSIBLE ERRORS (MPE)]

T.1. PRINCIPLES.

T.1.1. The tolerance for a weighing device is a performance requirement independent of the design principle used.

T.1.2. Weighing devices are divided into accuracy classes according to the number of scale divisions ( $n$ ) and the value of the scale division ( $d$ ).

T.1.3. The tolerance for a weighing device is related to the value of the scale division ( $d$ ) and is expressed in terms of a scale division.



T.1.4. A minimum capacity is specified in terms of a number of scale divisions to indicate that the use of the device with light loads is likely to result in large relative errors.

## T.2. ACCURACY CLASS.

T.2.1. Weighing devices are divided into accuracy classes and designated as follows:

Special Accuracy	Class I
High Accuracy	Class II
Medium Accuracy	Class III or III L
Ordinary Accuracy	Class IIII

T.2.2. The accuracy of class of a weighing device is determined by the follow table:

		Number of Scale Divisions		Minimum Capacity
		$n = \frac{\text{Max}}{d}$		
Class	Scale Interval d	Minimum	Maximum	Min
I - Special Accuracy				
°equal to or less than 0.5 mg		100	--	100 d
°equal to or greater than 1 mg		50 000	--	
II - High Accuracy				
°equal to or greater than 1 mg and equal to or less than 100 mg		100	50 000	50 d
°greater than 200 mg		5 000	50 000	
III - Medium Accuracy				
°equal to or greater than .1 g and equal to or less than 5 g		100	10 000	20 d
°equal to or greater than 10 g		500	10 000	
III L - Medium Accuracy/Large Capacity				
°equal to or greater than 2 kg		2 000	6 000	20 d
IIII - Ordinary Accuracy				
°equal to or greater than 5 g		100	1 000	10 d

## T.3. TOLERANCE APPLICATION

T.3.1. The tolerance values are positive (+) and negative (-), with the weighing device adjusted to zero at no load. When tare is in use, the tolerance values are applied from the tare zero reference.

T.3.2. The tolerances apply to increasing, decreasing, and shift test loads within the temperature limits specified in paragraph T.9.2.

T.3.3. For multiple range weighing devices (variable scale division), tolerances are based on the value of the scale division of the range in use.

#### T.4. TOLERANCE VALUES

T.4.1. Except for weighing devices of Class III L, the acceptance tolerance values are as specified in the following table.

##### ACCEPTANCE TOLERANCES

Scale Divisions					
Class	$\frac{1}{2}d$	$1d$	$1 \frac{1}{2}d$	$2 \frac{1}{2}d$	
I	0 - 50 000	50 001 - 200 000	200 001 +		
II	0 - 5 000	5 001 - 20 000	20 001 - 50 000		
III	0 - 500	501 - 2 000	2 001 - 4 000	4 000 +	
IIII	0 - 50	51 - 200	201 - 400	400 +	

T.4.2. The acceptance tolerance values for weighing devices of Class III L shall be  $1d$  for each  $1000d$  of test load.

T.4.3. The maintenance tolerance values for all weighing devices shall be two times the acceptance tolerance, except at zero load.

T.4.4. SEPARATE MAIN ELEMENTS: LOAD TRANSMITTING ELEMENT, INDICATING ELEMENT, ETC.- If a main element, separate from a weighing device, is submitted for type approval, the tolerance for the element is no more than 0.7 times that for the complete weighing device. This fraction includes the tolerance attributable to the testing devices used.

#### T.5. AGREEMENT OF INDICATIONS

T.5.1. MULTIPLE INDICATING/RECORDING ELEMENTS, MULTIPLE BALANCING METHOD.- In the case of multi-indicating/recording elements, tolerances shall be applied independently to each separate indicating and recording element of a weighing device.

T.5.2. SINGLE INDICATING/RECORDING ELEMENT, MULTIPLE BALANCING METHOD.- For a single indicator, the indications shall agree within one half division when the method of balancing is changed (e.g. counter-poise weights applied to the tip of a weighbeam, unit weights with a dial, etc.)

T.5.3. MULTIPLE INDICATING/RECORDING ELEMENT, SINGLE BALANCING METHOD.- For a weighing device equipped with multiple elements, used for indicating and/or recording, and a single means for balancing: For the same load, indications or recorded values, when taken in pairs, shall agree within one-half the value of the scale division in use.

T.5.4. TIME DEPENDENCE.- At constant test conditions the indication 20 seconds after the application of a load, and the indication after one hour shall not differ by more than the absolute value of the applicable tolerance for the applied load.

#### T.6. REPEATABILITY

T.6.1. The results obtained under reasonably constant static test conditions, by several weighings of the same load, shall agree within the absolute value of the maintenance tolerance for that load.

T.6.2. Any two results obtained under reasonably constant static test conditions, during the shift test, or section test, shall agree within the absolute value of the maintenance tolerance for that load.

#### T.7. SENSITIVITY

T.7.1. The sensitivity test shall be conducted on non-automatic indicating (beam) weighing devices only, with the weighing device in equilibrium at zero-load and at maximum test load.

T.7.1.1. A test load, equivalent to 1d at zero and 2d at maximum test load shall cause a permanent change of at least:

- (a) On a scale with trig loop but without a balance indicator, the position of the weighbeam shall change from the center to the outer limit of the trig loop.
- (b) On a scale with balance indicator, the position of the indicator shall change at least one division on the graduated scale, the width of the central target area, or the following value, whichever is greater.

1 mm (0.04 inch) for scales of Class I and II.

2 mm (0.08 inch) for scales of Classes III and IV with a maximum capacity of 30 kg (67.2 lb) or less.

5 mm (0.20 inch) for scales of Classes III, III L, and IV with a maximum capacity of more than 30 kg (67.2 lb).

- (c) On a scale without a trig loop or balance indicator, the position of rest of the weighbeam or lever system shall change from the horizontal or midway between limiting stops to either limit of motion.

T.8. DISCRIMINATION.- The discrimination test shall be conducted with the weighing device in equilibrium, at zero load and at maximum test load.

T.8.1. AUTOMATIC INDICATING - ANALOG (I.E., WEIGHING DEVICE WITH DIAL, DRUM, FAN, ETC.).- A test load of 1d shall cause a permanent change to the indication by at least 0.7 of the test load.

T.8.2. AUTOMATIC INDICATING - DIGITAL.- A test load, equivalent to 1.4 times the minimum division, shall cause a change of indication or printed value of two divisions. This requires that the zone of uncertainty shall not be greater than 0.3 times the value of minimum division.

(Note: The discrimination test is conducted from the lower or upper edge of the zone of uncertainty for increasing and decreasing load tests, respectively.)

#### T.9. INFLUENCE QUANTITIES

T.9.1. LEVEL.- If the performance of a portable scale is changed by an amount greater than the appropriate tolerance when it is moved from a level position and rebalanced in a position that is out of level in any direction by 5%, or approximately 3 degrees, the scale shall be equipped with level indicating means. (There is no additional tolerance allowance for out-of-level operating conditions.)

T.9.2. TEMPERATURE.- Devices shall satisfy the tolerance requirements under the following temperature conditions:

T.9.2.1. If not marked on the device, the temperature limits are:

<u>Classes</u>	<u>Temperature</u>
I	+10 °C (50 °F) to +30 °C (86 °F)
II	+10 °C (50 °F) to +30 °C (86 °F)
III & III L	-10 °C (14 °F) to +40 °C (104 °F)
IV	-10 °C (14 °F) to +40 °C (104 °F)

T.9.2.2. If temperature limits are marked on the device, the range shall be at least:

<u>Classes</u>	<u>Temperatures</u>
I	1 °C (2 °F) & 5 °C (9 °F)
II	15 °C (27 °F)
III & III L	30 °C (54 °F)
IV	30 °C (54 °F)

Unless the working temperature range is -10 to +40 °C, the working temperature range shall be stated on the identification plate.



T.9.2.3. TEMPERATURE EFFECT ON ZERO-LOAD BALANCE.- The zero-load indication shall not vary by more than 1 division per 5 °C change in temperature.

T.9.2.4. OPERATING TEMPERATURE.- An indicating or recording element shall not display or record any usable values until the operating temperature necessary for accurate weighing and a stable zero balance condition, has been attained.

T.9.3. HUMIDITY.- If no particular humidity limit is specified, the weighing device must satisfy the conditions defined in paragraphs T.4 through T.8 inclusive within 10 to 95% relative humidity, non-condensing.

T.9.4. ELECTRIC POWER SUPPLY.

T.9.4.1. LINE VOLTAGE AND FREQUENCY.-

- (a) Weighing devices that operate using alternating current must perform within the conditions defined in paragraphs T.4. through T.8. inclusive over the line voltage range of 100-130 volts rms and over the frequency range of 59.5 to 60.5 Hz.
- (b) Battery-operated instruments must perform over the power source range of 80 to 120 percent of full battery rated voltage, and meet the conditions defined in paragraphs T.4. through T.8. inclusive.

T.9.4.2. POWER INTERRUPTION.- An indicating or recording element shall not display or record any out-of-tolerance values caused by power interruptions.

T.9.5. BAROMETRIC PRESSURE.- The zero indication must not vary by more than one (1) scale division for a change in barometric pressure of 1 kilopascal over the total barometric pressure range of 112 to 124 kilopascals (28 to 31 inches Hg).

T.9.6. UNDEFINED INFLUENCE FACTORS.- Other influence quantities exist and should be taken into account when applying weighing systems. These include:

- Motion
- Vibration - steady state and transient
- Wind
- Snow and Rain
- Wash Down
- Gravitational Effects
- Radiation Effects
- Adverse Loads - Side Loads
- Adverse Loads - Shock Loads
- Temperature Gradients
- EMI/RFI
- Etc.

(A motion to table this item and refer it back to the Committee was passed)

The NTATF technical subcommittee on scales had developed and submitted to the Committee a final version of their recommendations for the Interpretations, Guidelines, and Test Procedures for Type Evaluation Examinations. The Committee was extremely pleased with this document and expresses its appreciation to that technical subcommittee for a super effort. It once again is a clear example of the accomplishment possible when members of the Conference representing both government and the private sector work diligently together. This publication will serve well the needs of the Legal Metrology System in the conduct of type evaluation examinations.

The document contains too much material to appear in this Conference Announcement; however copies will be available at the Conference for all attendees.

The Committee recommends that the technical subcommittee continue its effort, updating this document when deemed necessary, and further recommends Conference adoption of this document.

(Item 302-15 was adopted)

### 303 SECTION 3.30. LIQUID-MEASURING DEVICES

#### 303-1 MATHEMATICAL AGREEMENT/HIGH UNIT PRICES/READING UNCERTAINTY

In last year's report this subject appeared as Item 304-7, and included almost nine pages of discussion and information. The Committee reaffirms the validity of all of that material and this material was submitted to the technical subcommittee of NTATF. As indicated in last year's report, and after a study and review of all the comments received, the Committee recommends the following:

Add the following two new Note paragraphs:

#### N.4.4. MONEY VALUE COMPUTATION TESTS.

N.4.4.1. LABORATORY DESIGN EVALUATION TESTS.- In the conduct of laboratory design evaluation tests, compliance with paragraph S.1.4.4. shall be determined by using the cone gear as a reference for the total quantity delivered. The maximum allowable variation of the indicated delivered quantity shall be an indication with the index of the indicator in coincidence within the width of the graduation. The maximum allowable variation of the indicated sales price shall be plus or minus one half the value of the smallest money value division.

N.4.4.2. FIELD TESTS.- In the conduct of field tests to determine compliance with paragraph S.1.4.4. the maximum allowable variation in the indicated sales price shall be plus or minus the value of the minimum money value division.

(Item 303-1 was adopted)

303-2 S.1.4.4. MONEY-VALUE COMPUTATIONS

The Committee received comment that this paragraph should be amended to preclude the problem of computing-type devices being marketed with insufficient total sales indications. The Committee also recognizes that although the recommended field test in N.4.4.1. above is consistent with this paragraph, the recommended field test in N.4.4.2. above allows a computed sales price variation of 1 division, which is in conflict with this paragraph.

To resolve both of these issues, the Committee recommends that this paragraph be amended as follows:

S.1.4.4. MONEY VALUE COMPUTATIONS.- Money-value computations on a retail device shall be of the full-computing type in which the money value at a single unit price, or at each series of unit prices, shall be computed for every delivery within either the range of measurement of the device all deliveries of twenty-five gallons or less or the range of the computing elements, whichever is less greater. [Amended and nonretroactive as of 1983]

In a design evaluation test any analog money value indication shall not differ from the mathematically computed money value (Quantity x Unit Price = Sales Price), for any delivered quantity, by an amount greater than one-half the value of the money value division.

In a field test, the difference shall not be greater than the value of the money value division. [Amended 1982]

(This item was defeated. After a brief explanation by the Chairman of the Committee a motion to reconsider this item was passed. The Chairman deleted from the report the recommendation for amendment to the first paragraph of S.1.4.4. A motion to reconsider the second and third paragraphs was passed. Item 303-2 with the first paragraph of S.1.4.4. deleted was adopted.)

303-3 SUPPRESSION OF INDICATED VALUES

In last year's report this subject appeared as item 304-6 and is repeated here for the convenience of the Conference.

The Committee was requested to respond to a question concerning the maximum indicated quantity values that could be suppressed, or not indicated on a digital retail motor fuel dispenser. The Committee had responded to this issue two years ago and established this value as 0.009 gallon or 0.03 liter. Thus the first value indicated must never be more than 0.01 gallon or 0.04 liter.

This decision was based on the following:

1. The first indication on a device indicating in 0.01 gallon divisions is 0.01 gallon, therefore, a device indicating in 0.001 gallon units should be given the same consideration.
2. The equivalent value to 0.009 gallon is 2.08 cubic inches. This is a significant amount when compared to the tolerances allowed, and allowing any larger value would make the determination of the performance of the device more difficult and would necessitate taking additional 5-gallon test drafts.
3. The suppression does not improve the measurement capability but rather the opposite and tends to cover up other problems, e.g. soft wall hoses.

(This Item was adopted)

In response to the comments received since the Conference, the Committee recommends that paragraph S.1.4.1. be amended as follows:

S.1.4.1. FOR RETAIL DEVICES ONLY, EXCEPT SLOW-FLOW METERS/INDICATION OF DELIVERY.- A retail liquid-fuel device shall be constructed to show automatically its initial zero condition and the amounts delivered up to the nominal capacity of the device, except that the first 0.009 gallon or 0.03 liter and its associated total sales price need not be indicated.

(A motion was made to amend this item by replacing the value 0.009 with the value 0.019. A motion to debate this amendment was passed. After a brief debate the amendment was defeated. Item 303-3 was adopted).

303-4      RETAIL MOTOR FUEL DEVICES - DISPENSER/CONSOLE MONEY-VALUE DIVISION AGREEMENT.

Information on this subject appeared in last year's report as Item 304-3. The Committee's view has not changed that provision must be made in such a system to assure that customers pay only in the same money value divisions as appear on the retail dispenser. The Committee recommends that the Code be amended by adding the following new nonretroactive paragraph:

*S.1.4.4.3. MONEY-VALUE DIVISIONS AUXILIARY INDICATIONS.- In a system equipped with auxiliary indications, all indicated money-value divisions shall be identical. (Nonretroactive as of January 1, 1984).*

(Item 303-4 was adopted)



303-5 S.3.1. DIVERSION OF MEASURED LIQUID.

The Committee received many comments that motor fuel devices with two delivery outlets used in the fueling of trucks should be allowed to dispense from both outlets simultaneously provided that the installation does not facilitate diverting the flow from the intended receiving vehicle.

The Committee agrees and also considered that there were other applications where simultaneous flow is necessary, such as the fueling of certain aircraft and watercraft.

To accommodate these needs the Committee recommends code amendment as follows:

Amend S.3.1. to read:

S.3.1. DIVERSION OF MEASURED LIQUID.- No means shall be provided by which any measured liquid can be diverted from the measuring chamber of the meter or the discharge line therefrom. However, two or more delivery outlets may be installed if automatic means are provided to insure that:

- a) liquid can flow from only one such outlet at one time, and
- b) the direction of flow for which the mechanism may be set at any time is definitely and conspicuously indicated.

For devices installed specifically for the fueling of trucks, two outlets may be operated simultaneously if suitable means are provided to prevent diversion of flow to other than the receiving vehicle. Such means include but are not limited to physical barriers to adjacent driveways, visible valves or lighting systems indicating which outlets are in operation, and explanatory signs.

The provisions of this section shall not apply to measuring devices with all discharge outlets  $1\frac{1}{2}$  inches in diameter or larger, when these outlets are designed to operate simultaneously.

Amend UR.2.4. to read:

UR.2.4. DIVERSION OF LIQUID FLOW.- A motor-fuel device equipped with two delivery outlets used exclusively in the fueling of trucks shall be so installed that any diversion of flow ~~from either of the delivery outlets will be readily apparent, to other than~~ the receiving vehicle cannot readily be accomplished and is readily apparent.

(Item 303-5 was adopted)

The Committee discussed the impact of power failure occurring during the sale and delivery of motor fuel. Discussions were also held at NTATF meetings. It was agreed that problems could develop and there is a need for additional design criteria. The Committee recommends the Code be amended by adding the following new nonretroactive paragraph:

*S.1.4.1.1. INDICATION OF DELIVERY/POWER FAILURE.- In the event of a power loss adequate means shall be provided to complete any transaction in progress at the time of power loss. The necessary information such as quantity and unit price or sales price shall be capable of being determined for at least 15 minutes at the dispenser or at the console if accessible to the customer.*

*Information provided for the user, such as fuel dispensed and money value totals from the dispenser, shall be retained in the memory during power loss. (Nonretroactive as of January 1, 1983)*

(Item 303-6 was adopted)

303-7 REPORT OF THE NTATF TECHNICAL SUBCOMMITTEE ON LIQUID-MEASURING DEVICES

This subcommittee too worked diligently in the preparation of material for type evaluation examinations. The same comments that appeared in Item 302-15 apply here in all respects. The information that developed as a result of this cooperative effort will also be available for distribution at the Conference and the Committee recommends its adoption to be incorporated as a separate section in the publication "Interpretations, Guidelines, and Test Procedures for Type Evaluation Examinations."

(Item 303-7 was adopted)

304 SECTION 3.31. VEHICLE-TANK METERS.

304-1 TEMPERATURE COMPENSATION

Once again the Committee was requested to amend this code with the addition of requirements applicable to automatic temperature compensation. The Committee's view has not changed since this subject was first addressed by the Committee. That which follows is consistent with the Committee's recommendations in 1979 and 1980. (1980 Report pages 229-230-231 - Item 304-1)

Since automatic temperature compensators that interface with vehicle-tank meters are apparently readily available from several manufacturers, and currently in commercial use, it is the view of the committee that this technology should be recognized in the Code for Vehicle-Tank Meters. It is also the Committee's view and intent that this action neither requires this equipment to be used, nor does it make its use entirely voluntary. It merely removes an obstacle if, in the sale of

any product measured by a vehicle-tank meter, it is considered appropriate and legal to compensate for temperature variations.

The specific changes recommended for adoption in the Code are as follows:

S.2.4. THERMOMETER WELL.- Means shall be provided for inserting, for test purposes, a mercury-in-glass thermometer either

- (a) in the liquid chamber of the meter, or
- (b) in the meter inlet or discharge line and immediately adjacent to the meter.

S.2.5. AUTOMATIC TEMPERATURE COMPENSATION.- A device may be equipped with an adjustable automatic means for adjusting the indication and registration of the measured volume of product to the volume at 60 °F.

S.2.5.1. PROVISION FOR DEACTIVATING.- On a device equipped with an automatic temperature compensating mechanism that will indicate or record only in terms of gallons compensated to 60 °F, provision shall be made to facilitate the deactivation of the automatic temperature compensating mechanism so that the meter may indicate, and record if it is equipped to record, in terms of the uncompensated volume.

S.2.5.2. PROVISION FOR SEALING.- Provision shall be made for applying security seals in such a manner that an automatic temperature-compensating system cannot be disconnected and that no adjustment may be made to the system.

S.5.5. TEMPERATURE COMPENSATION.- If a device is equipped with an automatic temperature compensator, the primary indicating elements, recording elements, and recorded representation shall be clearly and conspicuously marked to show that the volume delivered has been adjusted to the volume at 60 °F.

N.4.1. NORMAL TESTS.- The "normal" test of a device shall be made at the maximum discharge rate that may be anticipated under the conditions of installation. If the device is equipped with an automatic temperature compensator, this test should be conducted with the compensator deactivated and activated.\*

\*Note: This amendment clearly states that both activated and deactivated tests are normal tests.

N.4.1.1. AUTOMATIC TEMPERATURE COMPENSATION.- If a device is equipped with an automatic temperature compensator, the compensator shall be tested by comparing; 1) the volume indicated or recorded by the device with the compensator

connected and operating with, 2) the actual delivered volume corrected to 60 °F.

N.5. TEMPERATURE CORRECTION.- Corrections shall be made for any changes in volume resulting from the differences in liquid temperatures between time of passage through the meter and time of volumetric determination in the test measure.

T.3. TOLERANCES FOR AUTOMATIC TEMPERATURE COMPENSATORS ON VEHICLE TANK METERS.- To the tolerances that would otherwise be applied to the device under test, there shall be added an amount equal to the change in the volume of the product for a 2 °F change in temperature.

UR.2.4. TEMPERATURE COMPENSATION.- Applicable only when the gallon is defined by State law as a specified volume at a specified temperature.

UR.2.4.1. USE OF AUTOMATIC TEMPERATURE COMPENSATORS.- If a device is equipped with an automatic temperature compensator, this shall be connected, operable, and in use at all times. Such automatic temperature compensator may not be removed, nor may a compensated device be replaced with an uncompensated device, without the written approval of the weights and measures authority having jurisdiction over the device.

UR.2.4.2. WRITTEN INVOICES.- Any written invoice based on a reading of a device that is equipped with an automatic temperature compensator shall show thereon that the volume delivered has been adjusted to the volume at 60 °F.

UR.2.4.3. NONAUTOMATIC TEMPERATURE COMPENSATION.- If the volume of the product delivered is adjusted to the volume at 60 °F, the product temperature shall be taken during the delivery in the liquid chamber of the meter or in the meter inlet or discharge line adjacent to the meter. The accompanying invoice shall indicate that the volume of the product has been adjusted for temperature variations to a volume of 60 °F and shall also state the product temperature used in making the adjustment.

(A motion to table was defeated. A motion for a division of the house (recount) was passed. The recount results confirmed the defeat of the motion to table. Item 304-1 was defeated.)



## 305-1 S.2.3. DIRECTIONAL FLOW VALVES.

The Committee received comment that this paragraph only required that valves which prevent the reversal of flow be automatic in operation and that measuring systems must be equipped with such a valve to operate accurately. The Committee agrees and recommends that this paragraph be amended to read:

S.2.3. DIRECTIONAL FLOW VALVES.- A measuring system shall be equipped with a valve or other effective means, automatic in operation and installed in or adjacent to the measuring element, to prevent reversal of flow of the product being measured.

(Item 305-1 was adopted)

## 305-2 S.2.7.1. FOR RETAIL MOTOR FUEL DEVICES/ZERO-SET-BACK INTERLOCK.

It was brought to the attention of the Committee that, although this requirement has been a part of the code since its adoption, many devices in use today are not equipped with such a mechanism. Industry representatives admitted that they and weights and measures officials have inadvertently overlooked this paragraph. This condition became apparent only recently with the increased use of LP gas as a motor fuel for automobiles. The Committee views this requirement as sound and recognizes that immediate compliance is impossible to attain. Therefore, the Committee recommends that each jurisdiction meet with Industry representatives to develop a practical program for the conversion of existing equipment over a reasonable period of time. This time period will vary in each jurisdiction dependent on the number of devices affected, the availability of equipment for conversion, and the volume of product sold at each particular location. The Committee further recommends that all newly installed equipment should be required to be in compliance with this paragraph.

(Item 305-2 was adopted)

## 305-3 N.3. TEST DRAFTS.

The Committee received a comment that this paragraph seemed to require a minimum of a 50-gallon test draft for all devices other than a retail motor-fuel device. Consequently devices used repeatedly to deliver drafts equal to 20 gallons or less, for example, those used to fill small recreational type tanks, had to be tested with 50-gallon test drafts. For clarification purposes the Committee recommends that this paragraph be amended to read:

N.3. TEST DRAFTS.- Test drafts should be equal to at least the amount delivered by the device in one minute at its maximum normal

discharge rate<sub>1</sub>, and shall in no case be less than 10 gallons for a retail motor fuel device and 50 gallons for any other device.

(Item 305-3 was adopted)

306 SECTION 5.52. LINEAR MEASURES.

306-1 S.5.2. GRADUATIONS/WIDTH

The Committee received a comment that this paragraph was unusually restrictive with respect to the design of tapes manufactured at the present time. It was suggested that requiring the width of graduations to be not greater than one-fourth the width of the smallest graduated interval was appropriate when the smallest interval was 1/16 inch. Tapes today are graduated in smaller intervals, for example, 1/32 inch or 1 mm, and to require a graduation width of 1/128 inch or 0.25 mm was impractical. The Committee agrees and feels that a change is necessary and that measurement integrity will not be compromised. The Committee recommends this paragraph be amended to read:

S.5.2. WIDTH.- The width of the graduations on any measure shall not exceed ~~one-fourth~~ one-half the width of the smallest graduated interval on the measure, and shall in no case be wider than 0.03 inch.

(Item 306-1 was adopted)

307 OTHER ITEMS

307-1 NONRETROACTIVE REQUIREMENTS

In accordance with the recommendation in Section 1.10. Introduction, paragraph 5, Classification of Requirements, the Committee recommends that the following nonretroactive requirements which have been effective for ten years or more become retroactive.

<u>CODE</u>	<u>PARAGRAPH</u>	<u>EFFECTIVE DATE</u>
Scale (2.20)	S.1.4.1. Capacity Indication	1/1/81
Scale (2.20)	S.1.6.3. Customer's Indications (Digital)	1971
Scale (2.20)	S.4.3. Multiple-Load-Receiving Elements	1969
Scale (2.20)	S.6.4. Marking Requirements/Weighing Elements	1972
Scale (2.20)	UR.1.1.7. Value of Smallest Unit/Railway Track Scales	1971
Farm Milk Tanks (4.43.)	S.2.2.1. Level Indicating Means/On a Stationary Tank	1969
Milk Bottles (4.44.)	S.4.1. Capacity	1969
Milk Bottles (4.44.)	S.4.2. Identification	1966
Wire- and Cordage-Measuring Devices (5.51.)	S.3.3. Design of Measuring Elements/ Accessibility	1969

(Item 307-1 was adopted)

307-2 CODE FOR MILK METERS (3.35)

This Code has been tentative since 1977. The Committee has not received any comments since that time and therefore recommends this code be changed from tentative to permanent status.

(Item 307-2 was adopted)

307-3 GRAIN MOISTURE METERS

The Committee received many comments on the draft tentative code presented in the Committee's Report to the 66th National Conference. On the basis of these comments, the task force on grain moisture measurement and the Committee have made changes to that draft and now recommend that the Code that follows be adopted as a tentative code.

During the ensuing year, the Committee and Task Force will be evaluating the use of transfer standards other than grain to determine suitable test procedures and tolerances for inclusion in this code at a later date. They will also be studying and developing, when deemed necessary, code requirements applicable to fully automatic grain moisture meters. The Committee would appreciate all information gathered by members of the Conference on these items as well as the entire tentative code.

SECTION 5.56. TENTATIVE CODE  
GRAIN MOISTURE METERS

This tentative code has only a trial or experimental status and is not intended to be enforced. The requirements are designed for observation and study prior to the development and final adoption of code for grain moisture meters.

A. APPLICATION

A.1.- This code applies to grain moisture meters; that is, devices used to indicate directly or through conversion and/or correction tables the moisture content of cereal grain and oil seeds. The code consists of general requirements applicable to all moisture meters and specific requirements applicable only to certain types of moisture meters.

A.2.- This code does not apply to devices used for in-motion measurement of grain moisture content or seed moisture content.

A.3.- See also General Code requirements.

S. SPECIFICATIONS

S.1. DESIGN OF INDICATING AND RECORDING ELEMENTS AND OF RECORDED REPRESENTATIONS.

S.1.1. PRIMARY ELEMENTS

S.1.1.1. GENERAL.- A meter shall be equipped with a primary indicating element and may also be equipped with a primary recording element. If the meter indicates directly and/or is equipped to record, the meter shall indicate and/or record its measurements in terms of percent moisture content, wet basis. Subdivisions of the unit shall be in term of decimal subdivisions (not fractions). If the meter indicates in the conventional scale and requires conversion or correction tables, the resulting values after use of such tables shall be in terms of percent moisture content, wet basis. Subdivisions of this unit shall be in terms of decimal subdivisions (not fractions).

S.1.2. GRADUATIONS

S.1.2.1. LENGTH.- Graduations shall be so varied in length that they may be conveniently read.

S.1.2.2. WIDTH.- In any series of graduations, the width of a graduation shall in no case be greater than the width of the minimum clear interval between graduations, and the width of the main graduations shall be not more than 50 percent greater than the width of subordinate graduations. Graduations shall in no case be less than 0.008 inch in width.



S.1.2.3. CLEAR INTERVAL BETWEEN GRADUATIONS.- The clear interval shall be not less than 0.03 inch between graduations. If the graduations are not parallel, the measurement shall be made

- a) along the line of relative movement between the graduations and the end of the indicator, or
- b) if the indicator is continuous, at the point of widest separation of the graduations.

#### S.1.3. INDICATORS

S.1.3.1. SYMMETRY.- The index of an indicator shall be symmetrical with respect to the graduations with which it is associated and at least throughout that portion of its length that is associated with the graduations.

S.1.3.2. LENGTH.- The index of an indicator shall reach to the finest graduations with which it is used, unless the indicator and the graduations are in the same plane, in which case the distance between the end of the indicator and the ends of the graduations, measured along the line of the graduations, shall be not more than 0.04 inch.

S.1.3.3. WIDTH.- The width of the index of an indicator in relation to the series of graduations with which it is used shall be not greater than

- (a) the width of the widest graduation,
- (b) the width of the minimum clear interval between graduations.

When the index of an indicator extends along the entire length of a graduation, that portion of the index of the indicator that may be brought into coincidence with the graduation shall be of the same width as the graduation throughout the length of the index that coincides with the graduation.

S.1.3.4. CLEARANCE.- The clearance between the index of an indicator and the graduations shall in no case be more than 0.06 inch.

S.1.3.5. PARALLAX.- Parallax effects shall be reduced to the practicable minimum.

#### S.1.4. DIGITAL INDICATIONS

S.1.4.1. MEASUREMENT COMPLETION.- A digital indicating element shall not display any values (either moisture content or conventional scale) before the end of the measurement cycle.

S.1.4.2. RANGE OF MOISTURE CONTENT.- A digital indicating element shall not display any values when the moisture content of the grain sample is beyond the operating range of the device.

#### S.1.5. RECORDING ELEMENTS

S.1.5.1. If a meter is equipped with a recording element, it shall record in terms of percent moisture content, wet basis only, and not in terms of a conventional scale.

S.1.5.2. MEASUREMENT COMPLETION.- A recording element shall not record any values before the end of the measurement cycle.

S.1.5.3. RANGE OF MOISTURE CONTENT.- A recording element shall not record any values when the moisture content of the grain sample is beyond the operating range of the device.

#### S.1.6. DESIGN OF DIRECT READING GRAIN MOISTURE METERS

S.1.6.1. GRAIN OR SEED KIND AND CLASS SELECTION AND RECORDING.- Provision shall be made for selecting and recording, if equipped to record, the kind and class (as appropriate) of grain or seed to be measured. The means to select the kind and class of grain or seed shall be readily visible and the kind and class of grain or seed selected shall be clearly and definitely identified in letters (such as WHEAT, or WHT, HRWW, etc.).

S.1.6.2. OPERATING RANGE.- Provision shall be made for clearly indicating when the operating range of the moisture meter has been exceeded.

#### S.2. DESIGN OF MEASUREMENT ELEMENTS.

S.2.1. DESIGN OF ZERO-SETTING AND TEST POINT MECHANISMS.- If a grain moisture meter is equipped with a zero setting and/or test point mechanism(s), this (these) mechanism(s) shall be adjustable only with a tool outside of and entirely separate from this mechanism or enclosed in a cabinet. This requirement shall not apply to manual operations that the operator must make (following operating instructions) in order to obtain a meter reading on a grain sample.

S.2.2. PROVISION FOR SEALING.- Provision shall be made for applying a security seal in a manner that requires the security seal to be broken before an adjustment can be made to any component of the grain moisture meter that is set by the manufacturer or authorized service representative and not intended to be adjusted by the user.

S.3. ACCESSORY EQUIPMENT.- When the operating instructions for a moisture meter require accessory equipment separate from and external to the moisture meter, such equipment shall be appropriate and complete for the measurement.

S.3.1. GRAIN-TEST SCALE.- If the moisture meter requires the weighing of the grain sample, the weighing device shall meet the requirements of the General Code and those applicable portions of the Scale Code.

S.3.2. THERMOMETERS OR OTHER TEMPERATURE SENSING EQUIPMENT.- The temperature sensing equipment or thermometer shall be designed so as to be in direct contact with a grain sample in a closed container. A thermometer inserted through a small hole in the lid of the container used to hold the grain sample is acceptable.

S.3.3. CONVERSION AND CORRECTION TABLES.- Conversion and correction tables, charts, graphs, slide rules, or other apparatus to convert the conventional scale values read from a moisture meter to moisture content values, if such apparatus is required, shall be appropriate and correct for the moisture meter being used and shall be marked with the following information:

- a) name and address or trademark of the manufacturer
- b) the type or design of the device with which it is intended to be used
- c) date of issue
- d) the kind or classes of grain or seed for which the device is designed to measure moisture content
- d) the limitations of use including but not confined to the moisture measurement range, grain or seed temperature, kind or class of grain or seed, moisture meter temperature, voltage and frequency ranges, electromagnetic interferences, and necessary accessory equipment.

S.3.4. OPERATING INSTRUCTIONS AND USE LIMITATIONS.- Operating Instructions shall be furnished by the manufacturer with each device with all of the information required by paragraph S.3.3. Complete information concerning the accuracy, sensitivity, and use of accessory equipment (e.g. test weight per bushel equipment, thermometer, etc.) necessary in obtaining a moisture content shall be included.

## N. NOTES

### N.1. TESTING PROCEDURES

N.1.1. TRANSFER STANDARDS\* - Official grain samples shall be used as the official transfer standard with moisture content values assigned with respect to the reference method. Tolerances shall be applied to the average of at least three measurements on each official grain sample. Official grain samples shall be clean, and naturally moist, not tempered (water added).

N.1.2. MINIMUM TEST.- As a minimum test, a moisture meter shall be tested within the operating ranges and for all the kinds of grain or seed that are measured with the device.

N.1.3. TEMPERATURE MEASURING EQUIPMENT.- The accuracy of accessory temperature measuring equipment shall be determined by comparison with a calibrated laboratory thermometer, that is a partial immersion thermometer with 0.5 °F (0.25 °C) subdivisions, indicating over a range of from 32 °F to 105 °F (0 °C to 42 °C) with a maximum error of 2 °F (1 °C). Tests shall be conducted at two temperatures using liquid baths (e.g., ice water and room temperature water). The two temperatures selected shall not exceed the range of temperatures identified in the moisture meter operating instructions.

A calibrated laboratory thermometer must be used with corrections in the field.

#### T. TOLERANCES\*

T.1. TO UNDERREGISTRATION AND TO OVERREGISTRATION.- The tolerances hereinafter prescribed shall be applied to errors of underregistration and errors of overregistration.

T.2. TOLERANCE VALUES.- Maintenance and acceptance tolerances shall be as shown in Table 1. Tolerances are expressed as a fraction of the percent moisture content of the official grain sample, together with a minimum tolerance.

T.3. FOR TEST WEIGHT PER BUSHEL INDICATIONS OR RECORDED REPRESENTATIVES.- The maintenance and acceptance tolerances on test weight per bushel indications or recorded representations shall be 0.15 pound per bushel.

\* These tolerances do not apply to tests in which grain moisture meters are the transfer standards.



TABLE 1.- TOLERANCES FOR GRAIN MOISTURE METERS

ACCEPTANCE TOLERANCES		
Type of grain or seed	Tolerance	Minimum Acceptance Tolerance
Corn, rice, sorghum, sunflower	0.04 of the percent moisture content	0.6 percent in moisture content
All other cereal grains and oil seeds	0.03 of the percent moisture content	0.5 percent in moisture content
MAINTENANCE TOLERANCES		
Corn, rice, sorghum, sunflower	0.05 of the percent moisture content	0.8 percent in moisture content
All other cereal grains and oil seeds	0.04 of the percent moisture content	0.7 percent in moisture content

## UR. USER REQUIREMENTS

### UR.1. SELECTION REQUIREMENTS

UR.1.1. VALUE OF THE SMALLEST UNIT ON PRIMARY INDICATING AND RECORDING ELEMENTS.- The value of the smallest unit on a moisture meter, whether the moisture meter reads directly in terms of moisture content or when the conventional scale unit is converted or corrected to moisture content, shall be equal to or less than one-half the value of the minimum acceptance tolerance.

UR.1.2. See G-UR.1.2.

### UR.2. INSTALLATION REQUIREMENTS

The grain moisture meter shall be installed in an environment within the range of temperature and/or other environmental factors specified in the operating manual and on the conversion or correction tables if such tables are necessary for the operation of the device.

### UR.3. USE REQUIREMENTS

Ur.3.1. OPERATING INSTRUCTIONS.- There shall be conspicuously posted or displayed the operating instructions for the use of a grain moisture meter. It shall include a list of accessory equipment, conversion and correction charts, if any are required to obtain moisture content values, and the kinds of grain or seed to be measured with the moisture meter.

UR.3.2. OTHER DEVICES NOT USED FOR COMMERCIAL MEASUREMENT.- If there are other moisture meters on the premises not used for trade or determining other charges for services, these devices shall be clearly and conspicuously marked "Not for Use in Trade or Commerce."

UR.3.3. MAINTAINING INTEGRITY OF GRAIN SAMPLES.- Whenever there is a time lapse (temperature change) between taking the sample and testing the sample, means to prevent condensation of moisture or loss of moisture from grain samples shall be used. For example, a cold grain sample may be kept in a closed container in order to permit the cold grain to come to the operating temperature range of the meter before the grain moisture measurements are made.

UR.3.4. PRINTED TICKETS.- Printed tickets, if the meter is so equipped, shall be free from any previous indication of moisture content or type of grain or seed selected.

UR.3.5. ACCESSORY DEVICES.- Accessory devices, if necessary in the determination of a moisture content value, shall be in close proximity to the moisture meter and allow immediate use.

UR.3.6. SAMPLING.- A grain sample shall be obtained by following appropriate sampling methods and equipment. These include, but are not limited to grain probes of appropriate length used at random locations in the bulk, the use of a pelican sampler, or other techniques and equipment giving equivalent results. The grain sample shall be taken such that it is representative of the lot.

UR.3.7. LOCATION.- See G-UR.3.3.

#### DEFINITION OF TERMS

CEREAL GRAIN AND OIL SEEDS. Agricultural commodities including, but not limited to, corn, wheat, oats, barley, flax rice, sorghum, soybeans, peanuts, dry beans, safflower, sunflower, fescue seed, etc.

CLASS OF GRAIN. Hard Red Winter Wheat is distinguished from Hard Red Spring Wheat as distinguished from Soft Red Winter Wheat, etc.

CONVENTIONAL SCALE. If the use of conversion tables is necessary to obtain a moisture content value, the moisture meter indicating scale is called "conventional scale." The values indicated by the scale are dimensionless.

CONVERSION TABLE. Any table, graph, slide rule, or other external device used to determine the moisture content from the value indicated by the moisture meter.

CORRECTION TABLE. Any table, graph, slide rule, or other external device used to determine the moisture content from the value indicated by the moisture meter when the indicated value is altered by a parameter not automatically corrected for in the moisture meter (for example, temperature or test weight).

GRAIN MOISTURE METER. Any device indicating either directly or through conversion tables and/or correction tables the moisture content of cereal grains and oil seeds. Also termed "moisture meter."

GRAIN SAMPLE. That portion of grain or seed taken from a bulk of grain or seed to be bought or sold and used to determine the moisture content of the bulk.

GRAIN-TEST SCALE. A scale adapted to weighing grain samples used in determining moisture content, dockage, weight per unit volume, etc.

KIND OF GRAIN. Corn as distinguished from soybeans as distinguished from wheat, etc.

MOISTURE CONTENT (WET BASIS). The mass of water in a grain or seed sample (determined by the reference method) divided by the mass of the grain or seed sample expressed as a percentage (%).

OFFICIAL GRAIN SAMPLES. Grain or seed used by the official as the official transfer standard from the reference standard method to test the accuracy and precision of grain moisture meters.

REFERENCE METHOD. The oven drying methods as specified in U.S. Department of Agriculture Instruction 916-6, Chapter XII, dated 11/15/71 or most current USDA methods.

(Item 307-3 was adopted)

307-4 SMALL UTILITIES METERS, LIQUID FEED AND FERTILIZER MEASURING SYSTEMS, AND MEASURING SYSTEMS FOR CHEMICALS.

There were two other important problems for which there was insufficient time for a complete discussion. These were certain small meters used to measure energy consumption in one form or another by individual units within a large complex such as a shopping center or an apartment house and measuring systems for liquid feed and fertilizer and other chemicals. The Committee urges all those interested in these subjects to forward to the Committee during the ensuing year all information available with an explanation of the problems involved.

(Item 307-4 was adopted)

In continuation of the policy established at last year's Conference, the chronological listing of the OWM Reports of Test completed since last year is included at the end of this Report.

The Committee expresses its sincere and grateful appreciation to all those offering comments and suggestions. In most instances, the information was presented in an orderly and effective manner, which greatly facilitated review of the information by the Committee and action thereon. It is only through such cooperative effort that the Conference can continue to attain uniform and equitable measurement standards. The Committee also expresses its appreciation to all those participating in the Interim Meeting. The comments and suggestions greatly aided the Committee in its deliberations.

F. C. Nagele, Michigan, Chairman  
S. A. Colbrook, Illinois  
L. H. DeGrange, Maryland  
F. Gerke, New Mexico  
D. A. Guensler, California  
O. K. Warnlof, Technical Advisor, NBS  
A. D. Tholen, Executive Secretary, NCWM

COMMITTEE ON SPECIFICATIONS AND TOLERANCES



(On motion by the committee chairman, the report of the Committee on Specifications and Tolerances voting key items 300 through 307-4 was adopted in its entirety as amended by the Conference. The results of the voting in the House of State Representatives and the House of Delegates under the Conference voting system are totalized in the table that follows. The Conference also authorized the Executive Secretary to make any appropriate editorial changes in the language adopted by the Conference.)

VOTING RESULTS--Committee on Specifications and Tolerances

Voting Key	<u>House of State Representatives</u>		<u>House of Delegates</u>	
	Yes	No	Yes	No
301-1	6	38	7	52
302-1	49	0	57	0
302-2	47	0	56	0
302-3	47	0	59	0
302-4	47	0	64	0
302-5	12	34	10	49
302-6*	46	1	55	1
302-6**	22	24	33	20
302-6***	40	5	56	8
302-7	47	0	60	0
302-8	22	19	21	32
302-9	46	0	58	0
302-10	46	0	55	0
302-11	47	0	57	0
302-12	47	0	59	0
302-13	44	1	32	7
302-14***	33	13	41	7
302-15	47	0	55	0
303-1	33	1	46	0
303-2	20	21	24	26
303-2****	39	2	46	3
303-2*****	35	1	61	2
303-2	37	0	59	0
303-3***	34	1	41	13
303-3**	10	28	12	44
303-3	34	5	49	3
303-4	32	5	38	11
303-5	31	4	50	3
303-6	35	2	45	9
303-7	41	0	58	0
304-1***	24	11	30	17
304-1****	33	5	38	14
304-1****	25	14	33	20
304-1	15	23	26	31
305-1	43	0	58	0
305-2				
305-3				
306-1				
307-2	44	0	59	0
307-1				
307-3				
307-4				
300	45	0	51	0

\* Motion to debate amendment  
 \*\* Motion on amendment  
 \*\*\* Motion to table  
 \*\*\*\* Motion to reconsider  
 \*\*\*\*\* Motion for recount

## OWN REPORT OF TEST

Number	Date	Company	Model	Equipment Description	Capacity	n
549	8/3/81	New Brunswick	DPS-1000	Prepackaging Scale	30 lb	3 000
550*	8/3/81	New Brunswick	DPS-2000	Comp. Scale & Random Label Printer	30 lb	3 000
551	3/15/82	Hobart	5000	Prepackaging Scale	30 lb	3 000
552	5/8/81	Toledo Scale	8132	Indicating Element	100 lb	20 000
553	5/8/81	Toledo Scale	8805	Ticket Printer		
554	5/18/81	International Business Machines	3683-1A	Point-of Sale System	30 lb	3 000
555	7/20/81	Bellcore	299	Retail Petroleum Dispenser	999.9 gal	9 999
556	6/2/81	Metro Equipment Corporation	SAM-3K	Indicating Element	150 lb	3 000
557	6/10/81	Pennsylvania Scale Company	PS-510	Postal Rate Comp. Fan Scale	10 lb	320
558	6/10/81	Pennsylvania Scale Company	S-100	Computing Fan Scale	2 lb	128
559	6/11/81	Earnshaw Equipment Company	RPU-8001A	Computing Indicating Element	99.999 gal	99 999
560**	6/17/81	Fairbanks Weighing Division	12-3361	Self Contained Vehicle Scale	120 000 lb	6 000
561	8/27/81	Brooks Instruments Division	Parity	Wholesale Liquid Measuring Dev.	1 300 gal	
562	8/27/81	Petroleum Meter & Pump Co.	4103	Retail Motor Fuel Dispenser	999.9 gal	9 999
563	9/15/81	Jay Corporation	3420	Price Computing Scale	30 lb	3 000
564	9/15/81	Jay Corporation	3120	Weighing Element	30 lb	3 000
565	9/15/81	Jay Corporation	1020	Label Printer		
566	8/27/81	Measuregraph Company	181	Fabric Measuring Device	99 7/8 yd	799
567	4/19/82	Thurman Scale Company	PTL 6010-SAZ-C-DWI-P	Self Contained Vehicle Scale	100 000 lb	5 000
569	4/15/82	Thurman Scale Company	SAM	Self Contained Vehicle Scale	100 000 lb	5 000
570	9/15/82	National Controls, Inc.	3200	Price Computing Scale	30 lb	3 000
571	9/15/81	National Controls, Inc.	4000	Weighing Element	30 lb	3 000
572	9/15/81	Fairbanks Weighing Division	H90-3008	Indicating Element	100 lb	2 000
573	9/23/81	Johnson Scale Company	35100	Jewelers Scale	2250	22 500
574	9/25/81	Howe Richardson Scale Company	SSD-500	Indicating Element	200 lb	20 000
575	9/25/81	Howe Richardson Scale Company	X-ACTRON II	Indicating Element	400 lb	8 000
576	9/25/81	Fairbanks Weighing Division	11-3300	Livestock Scale	20 000 lb	4 000
577	9/25/81	Toledo Scale	2295	Weighing Element	20 000 lb	10 000
578	9/25/81	Toledo Scale	7510	Self-contained Vehicle Scale	120 000 lb	6 000
579	9/25/81	Howe Richardson Scale Company	SSD700	Indicating Element	50 lb	5 000
580	9/25/81	Measurement Systems International	MSI 4260	Crane Scale	5 000 lb	5 000
581	9/25/81	Metro Equipment Corporation	HQ-12K	Indicating Element	120 lb	12 000
583	10/23/81	Tokyo Electric Company, Inc.	HP-7D	Label Printer		
584	10/23/81	Tokyo Electric Company, Inc.	SL-35-30L	Computing Scale	30 lb	3 000
585	10/23/81	Tokyo Electric Company, Inc.	SL-36-15L	Computing Scale	15 lb	1 500
586	10/23/81	Tokyo Electric Company, Inc.	SL-55-30	Computing Scale	30 lb	3 000
587	12/14/81	Fairbanks Weighing Division	H90-152	Indicating Element	400 lb	8 000

\* Amended (date 7/16/82)

\*\* Amended (date 8/27/81)

n number of scale divisions

1982

## OWM REPORT OF TEST

Number	Date	Company	Model	Equipment Description	Capacity	n
588	2/1/82	Kubota America Corporation	LA-230	Computing Scale	30 lb	3 000
589	2/1/82	International Weighing Systems	10010-E6LP	Self-contained Vehicle	120 000 lb	12 000
590	2/1/82	Ishida Scales Manufacturing Co.	DP 804P	Computing Scale	25 lb	2 500
591	2/1/82	Howe Richardson Scale Co.	SSD-800	Indicating Element	100 lb	10 000
592	2/1/82	Fairbanks Weighing Division	8854A	Livestock Auction Scale	60 000 lb	12 000
593	3/15/82	General Electronics Corporation	MD-500E	Wheel Load Weigher	20 000 lb	2 000
594	3/15/82	Toledo Scale	8192	Grain Bulkweighing System	20 000 lb	2 000
595	3/15/82	New Brunswick International	DS-150	Weighing Element	30 lb	3 000
596	3/15/82	Veeder Root	VR-10	Retail Motor Fuel Dispenser	999.9 gal	9 999
597	3/15/82	Veeder Root	VR-10/4	Retail Motor Fuel Dispenser	999.9 gal	9 999
598	3/15/82	Amacon	SS 5010	Self Contained Vehicle Scales	120 000 lb	6 000
599	3/15/82	Asted Industries	SS 5010	Self Contained Vehicle Scales	120 000 lb	6 000
600	3/15/82	Sedburro Equipment Company	8840	Grain Test Scale	2 000 g	4 000
601	4/15/82	Berkel Incorporated	521	Computing Scale	30 lb	3 000
602	4/15/82	Analogic Corporation	AN 5323	Indicating Element	400 lb	20 000
603	4/15/82	Sanitary Scale Company	TR-3 UPC	Prepackaging Scale	25 lb	2 500
604	4/19/82	International Weighing System	CD-2404	Indicating Element	200 lb	20 000
605	4/15/82	National Controls, Inc.	5782	Indicating Element	100 lb	10 000
606	4/19/82	Petroleum Meter and Pump	4203	Retail Motor Fuel Dispenser	Comp. 999.9 gal	9 999
607	6/1/82	Ishida Scales Manufacturer	LIBRA 300	Computing Scale	30 lb	3 000
608	6/23/82	Jay Corporation	3410	Computing Scale	30 lb	3 000
609	6/23/82	Jay Corporation	240	Cash Register	30 lb	3 000
610	6/23/82	Load-O-Meter Corporation	H-Type 100	Wheel Load Weigher	20 000 lb	400
611	6/23/82	Green Bay Scale Company	P44	Weighing Element	6 000 lb	6 000
612	6/23/82	Metro Equipment Corporation	PEP-5K	Indicating Element	100 lb	5 000
613	6/23/82	Fairbanks Weighing Division	H70-46XX	Bench Scale	50 lb	5 000
614	6/23/82	Fairbanks Weighing Division	90-152	Indicating Element	400 lb	8 000
615	6/23/82	Fairbanks Weighing Division	H70-42XX	Bench Scale	55 lb	5 500
616	6/23/82	Fairbanks Weighing Division	H70-43XX	Bench Scale	10 lb	5 000
617	6/23/82	National Controls, Inc.	3200-R	Price Computing Indicating Element	30 lb	3 000
618	6/23/82	Toledo Scale	8420	Computing Scale	30 lb	3 000
619	6/23/82	New Brunswick International, Inc.	SM-40	Price Computing Scale	30 lb	3 000
620	6/23/82	Fairbanks Weighing Division	23-2500	Weighing Element	5 000 lb	5 000
621	6/23/82	Amacon, Inc.	WS-1	Indicating Element	120 000 lb	6 000
622	6/23/82	PERCO Systems, Inc.	FE-5	Retail Motor Fuel Dispenser	Comp. 999.999 gal	9 999.99
623	6/23/82	Scientech, Inc.	SE500	Jewelers' Balance	500 carat *	100 000
624	6/23/82	OMRON Electronics, Inc.	RS 80-20	Cash Register	30 lb	3 000
625	7/6/82	Sponsler Company, Inc.	SP1 1/2 8130R	Cryogenic Liquid Meter	99999.9 gal	999999
626	7/6/82	OMRON Electronics, Inc.	RS 40-10	Cash Register	30 lb	3 000

n - number of scale divisions

\* - multi range



# ADDENDUMS TO REPORTS OF TEST

Number	Date	Company	Model
142	9/4/81	Sterling Scale Company, Inc.	DW 500
143			DC 370 CL
197			DW 550
342			DC 15LP
344			DC 370 CL-LP
228	9/10/81	Fairbanks Weighing Division	50-5361
370	2/1/82	Metro Equipment Corporation	AL-1000
371			AL-400
372	2/1/82	National Cash Register Corporation	255
414			2552
389	9/4/81	New Brunswick International, Inc.	DS 60-30D
441	2/1/82	Fairbanks Weighing Division	50-7650
446	7/1/81	Hobart Manufacturing Company	1840
531	2/1/82	M.S. Industries, Inc.	200
554	8/14/81	International Business Machines Corp.	3683-1A
570	6/15/82	National Controls, Inc.	3200
572	2/1/82	Fairbanks Weighing Division	H90-3008
540	4/12/82	Koppens Automatic U.S.A. Ltd.	E.P.S.

REPORT OF THE  
COMMITTEE ON EDUCATION, ADMINISTRATION,  
AND CONSUMER AFFAIRS

Presented by JOSEPH L. SWANSON, Director,  
Division of Measurement Standards, State of Alaska

VOTING KEY

400

INTRODUCTION

The Committee on Education, Administration, and Consumer Affairs submits its final report to the 67th National Conference on Weights and Measures. The report consists of the tentative report as offered in the Conference Announcement, and as amended by the final report. The report represents recommendations of the committee that have been formed on the basis of written and oral comments received during the year and oral presentations made during the general meeting of the committee.

401

NATIONAL WEIGHTS AND MEASURES WEEK

One of the important responsibilities of the Committee is the coordinating of National Weights and Measures Week each year. Mr. Tom Geiler of Hyannis, Mass., who served as National Chairman for the 1982 Week, is sincerely commended by the Committee for his very successful effort to secure promotional materials and for his overall effort to make the Week a success.

The Committee would like to personally thank Dick Hurley of Fairbanks Weighing Division of Colt Industries, Tom Stabler of Toledo Scale, Fred Katterheinrich of Hobart Corporation, and Ray Lloyd of Scale Manufacturers Association, not only for their individual efforts and help, but also for the excellent promotional materials they provided for all of the coordinators for the Week.

The Committee appoints Bruce Niebergall as Chairman and Peggy Adams of Bucks County Pennsylvania as Co-Chairman for National Weights and Measures Week 1983.

(Item 401 was adopted)

402

NATIONAL CERTIFICATION PROGRAM

The Committee would like to stress the fact that the Certification Program is voluntary and that the training module can be used without the Certification process. However, it believes that to effectively draft a viable National Training Program the Certification process must be drafted simultaneously with the training modules.

The Committee will present to the conference the National Certification Program in accordance with the time table based on the flow chart in item 403.

(Item 402 was adopted)

403

NATIONAL TRAINING PROGRAM

BACKGROUND

POSITION STATEMENT

Weights and measures enforcement in the United States is not a Federal function, but a State and/or local responsibility. Although the States are responsible for enforcement of our system of weights and measures, the National Bureau of Standards provides technical assistance and advice to promote measurement uniformity and traceability of standards. This Federal mandate has historically involved technical training. However, the sudden conversion to new electronic devices in the marketplace requires a training capability beyond the present resources of the NBS Office of Weights and Measures.

Several State and local jurisdictions, NBS, and the private sector are providing training programs for the weights and measures officials on a piecemeal basis today. However, no single organized, integrated, institutionalized program exists that serves the needs of both new and current officials in a uniform manner.

About half of the fifty States and some of the larger local jurisdictions have appointed training officers and are conducting in-house training programs for their officials. Some of these programs include classroom type training as well as field or on-the-job training--others consist of on-the-job training only and little uniformity of training material or method exists.

For more than twenty years the NBS Office of Weights and Measures has conducted seminar type training at the rate of twenty or more three- to five-day sessions per year, in the individual States or regions of the U.S. Considering the annual turnover rate of weights and measures officials of approximately 10%, the annual changes to the weights and measures regulations, and the rapid introduction of new technology in the marketplace, the NBS is supporting the proposed plan as a means to establish the necessary national training program.

The Institute for Weights and Measures, a non-profit group chartered in the State of Ohio, has been offering training programs for weights and measures and industry service personnel for the past two years.

Alfred Technical College in Alfred, N.Y. offers a two-year associate degree course in scale technology aimed at the technician level.

Yuba College in Yuba, California offers a two year associate degree course that includes weights and measures law and enforcement courses.

The National Scalemens Association has conducted a program of "Scales" on Saturday for weights and measures and industry service officials for a number of years.

Many of the Scale, Meter, and Packaging industry officials offer training and demonstrations of their respective equipment at conferences and training seminars on a continuing basis throughout the U.S.

#### THE CONCEPT

The Committee has determined that four categories of training are necessary to serve the broad needs of weights and measures officials. These types are Primary, Continuing Education, Specialized Education, and Career Development. Table 1 identifies the suggested delivery agent or agents for each category; each category of training is described separately in this plan.

TABLE 1  
Delivery Agents (x)

Category	State & Local	NBS	Educational Institutions	Associations Industry Groups
Primary	x	a		
Continuing Ed.	x	a	x	x
Specialized Ed.		x	x	a
Career Dev.	x	a	x	x

a - Technical advice and review.

This training plan also forms the basis for a certification program.

#### PART I - PRIMARY

Primary Training is intended for new trainees and for the older experienced officials who wish to become certified in one or more program areas. The training material will be presented in illustrated inspector and instructor manuals. The manuals will contain a general description of the devices or systems to be tested, step-by-step examination procedures, all H-44 paragraphs that pertain to the device or system, a recommended time frame for completion of the various parts, and written tests to evaluate performance of the official taking the training.

Table 2 lists the program areas identified by the Committee as requiring a separate training manual.



TABLE 2  
Primary Training Manuals  
Devices

Number	Title	Devices Covered
1	Retail Computing Scales-Mechanical & Electronic	Cylinder and Fan Computing Digital Electronic Computing, Pre-Package, Electronic Cash Registers.
2	Small Capacity Balances & Test Scales	Prescription, Jewelers, Cream Test, Moisture Test, Grain Test Scales
3	Bench, Counter, & Hanging Scales	Hanging Scales, Bench & Counter, Automatic & Non- Automatic Indicating
4	Medium Capacity Scales Dormant & Industrial	Counter, Portable, Floor, & Built-In, Automatic & Non-Automatic Indicating, Monorail & Meat Beams
5	Vehicle & Axle Load Scales	Vehicle & Axle Load, Mechanical & Electronic
6	Livestock & Animal Scales	Livestock & Animal, Mechanical & Electronic
7	Hopper Scales	Automatic Grain Hopper, Construction Material Hopper, Mechanical & Electronic
8	Wheel Load Weighers	Wheel Load Weighers, Mechanical & Electronic
9	Belt Conveyor Scales	Belt Conveyor Scales All Types-Mechanical & Electronic
10	Weights-Equal Arm & Counterpoise	Weights-All Types
11	Retail Motor Fuel Dispensers	Single Product, Blend, Twin, Motor Fuel Dispensers-Mechanical & Electronic & Electronic Consoles

TABLE 2 - (continued)

Number	Title	Devices Covered
12	Liquid Measures	Hand Crank Fuel Pumps
13	Other Retail Measuring Devices	Lubricant Devices Motor Oil Bottles
14	Large Capacity Meters	Loading Rack Meters Vehicle Tank Meters Power Operated & Gravity Compensated & Uncompensated
15	Liquefied Petroleum Gas Meters	LPG Liquid & Vapor Meters, Retail & Wholesale & Motor Fuel Devices
Package Control-Labeling		
16	Checking Net Contents of Packaged Goods	Random, Standard, Mass, Liquid, Linear, Special Products
17	Labeling of Packaged Products	Net Contents Statement, Responsibility, Method of Sale
Law and Regulations		
18	Model State Law & Regulations	Legal Authority, Penalties
General		
19	Communications	Weights & Measures Officials, Device Owners & Operators, Industry, Consumers.

The training manuals will contain drawings, illustrations, and pictures, and will be supplemented by visual aids for use by the training official in instruction on the conduct of complete, effective, and uniform examination of devices systems and marketplace products. When necessary, interpretative material of Handbook 44 requirements will be presented to assure uniform application of requirements.

It is the intention of the Committee to provide the jurisdictions with well-structured hard-copy training material that can be universally accepted and applied across the United States. Before approval by the Conference to publish and distribute any of the manuals requested, a thorough editing and review process will occur. The appropriate NCWM Committees(s) will be asked to review the material for accuracy of interpretations and technical content. Appropriate industry officials in the area of technology being considered will be asked for comments and finally weights and measures officials who have demonstrated expertise in the area under consideration will be consulted.

#### Specialized Training in Electronics and Computer Terminology

During the training Conference for Measurement Practitioners held at Texas A&M University in January of 1981, it was determined that development of specialized training material in electronics and computer terminology was necessary.

Committee plan calls for the development of this specialized material on a modular basis for ease of inclusion appropriately throughout the Primary Training manuals. Development of this training material must be done by a training institution that has expertise in the technical areas to be addressed.

#### Organizational Responsibilities

Overall responsibility for development of the Primary Training Program rests with the NCWM leadership. Management of the development will be assumed by the Committee on Education, Administration, and Consumer Education with technical assistance from the National Bureau of Standards. Funding of the program is anticipated by NBS to the Conference in the form of a grant for two years (said funding is contingent on stability of the funding of NBS by the Congress).

The Conference will contract for specific work to be performed by a training institutions(s); said contractor will work under the supervision and guidance of the Education Committee.

Working Groups, composed of State and local officials and industry representatives, will be appointed by the NCWM Chairman on the advice of the Education Committee; each such working group will be assigned the responsibility to write (or complete if a draft exists) a training module. See Table 3 for organizational representatives.

Table 3  
Organization Relationships

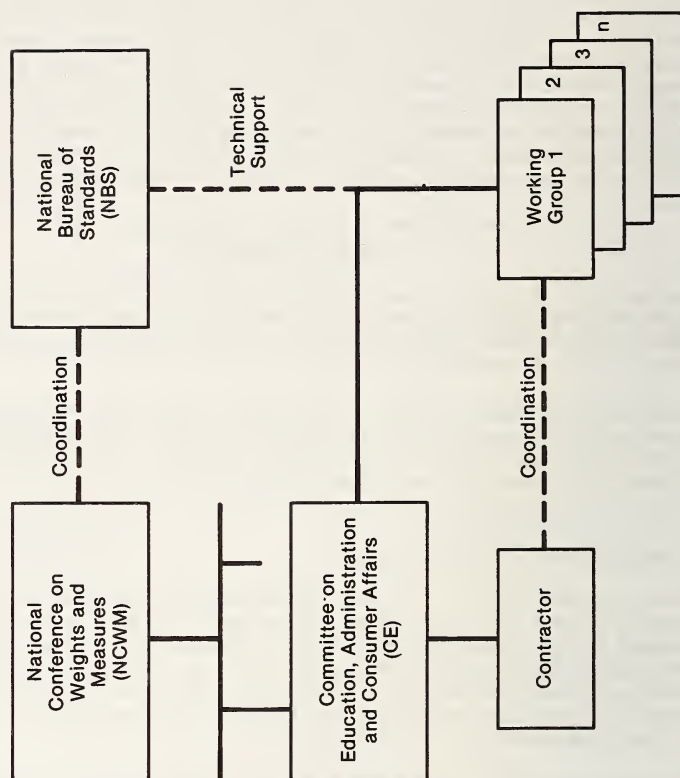
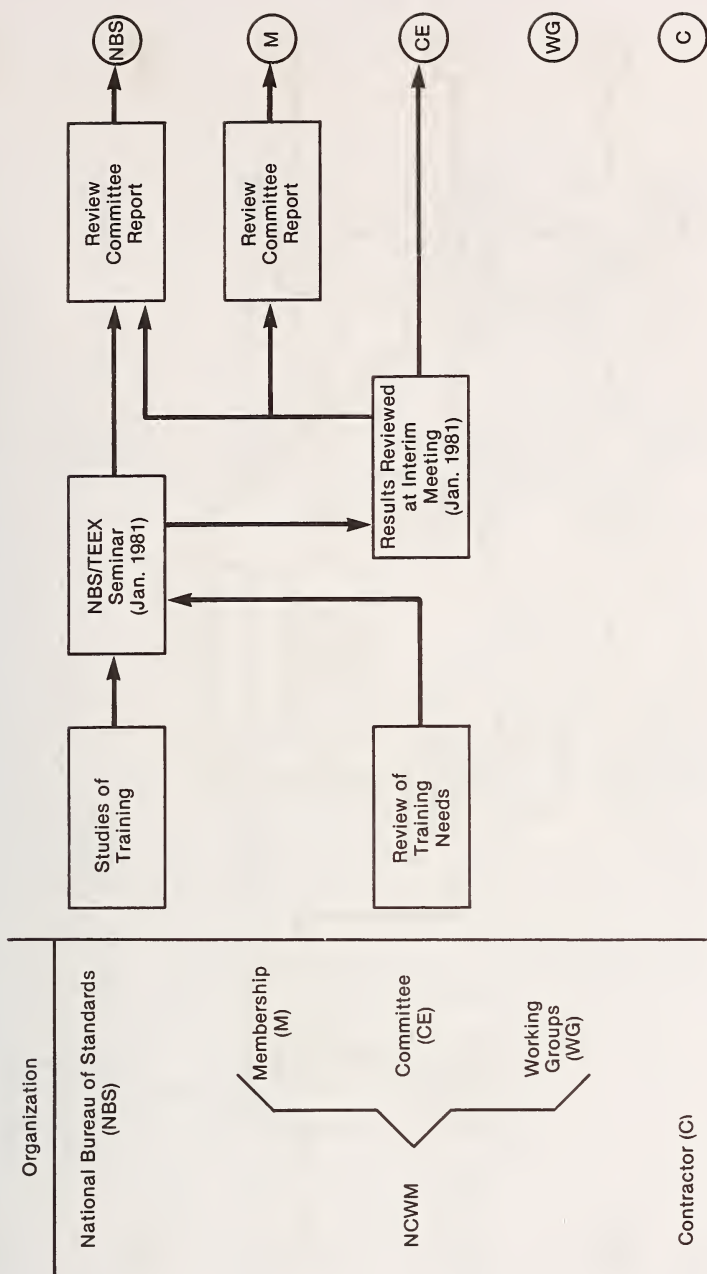
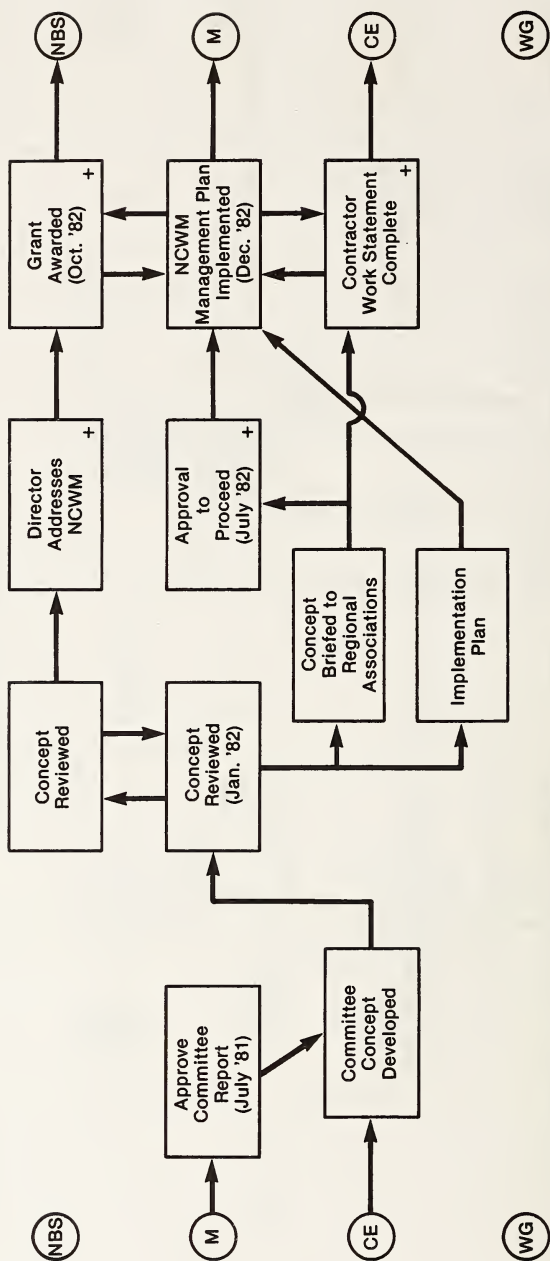
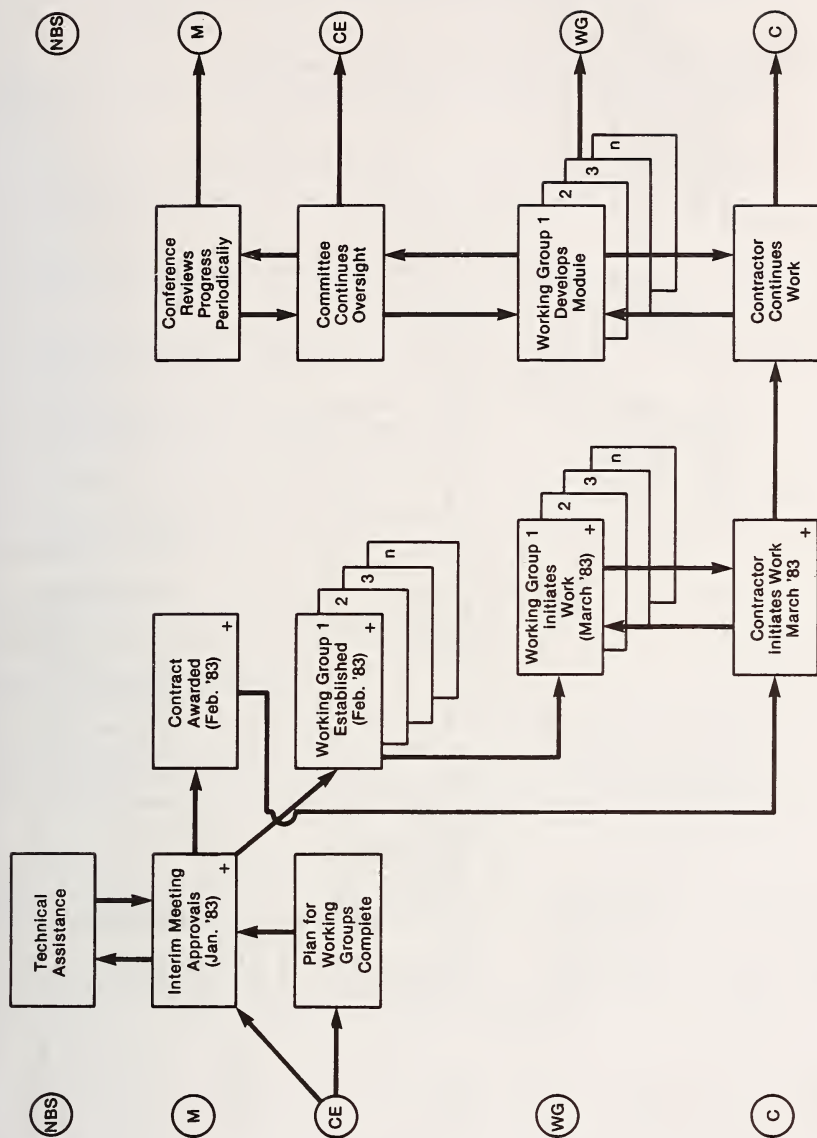




Table 4  
Activities and Responsibilities







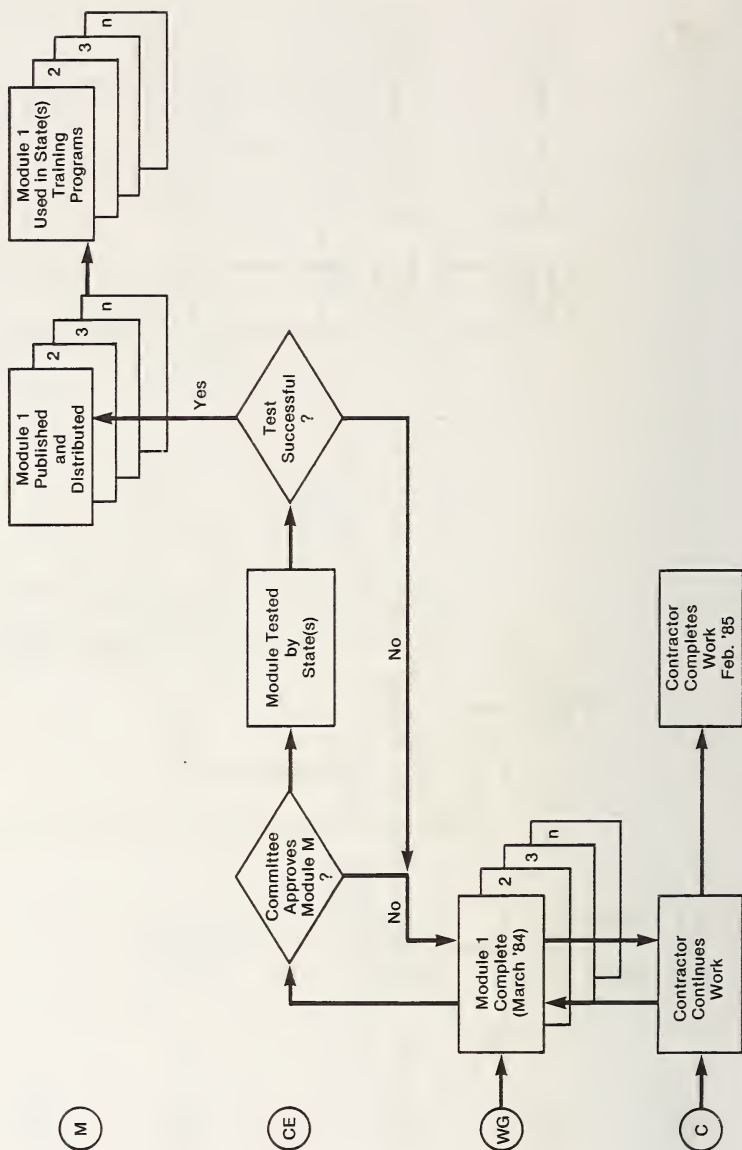
(NBS)

(M)

(CE)

(WG)

(C)





## ACTIVITIES AND RESPONSIBILITIES

Development of the Primary Training Program is expected to extend over a period of 6-½ years. The major responsibilities and events are depicted in Table 4.

Certain events in this plan as follows are considered critical and must take place as specified for the anticipated timely completion of the program:

1. NBS Director addresses Conference to outline NBS support of plan.
2. Conference membership votes to approve proceeding with plan in July 1982.
3. Grant of first NBS funds to Conference to support program occurs in October 1982.
4. Contractor work statement is completed by Committee and ready for review by December 1982.
5. Conference management approves contractor work statement during Interim Meeting in January 1983.
6. Contract is awarded to Contractor in February 1983.
7. First working group is established for manual preparation in February 1983.
8. Working group initiates work in March 1983.
9. Contractor initiates work in March 1983.

## MODULE DEVELOPMENT SCHEDULE

The development (or completion in the case of those already drafted by Alaska Department of Weights and Measures) of the modules listed in Table 2 will start with the appointment of the first Working Group in February 1983 and continue through January 1989 as outlined below.

TABLE 5

<u>Module No</u>	<u>Working Group Appointed</u>	<u>First Draft Complete</u>	<u>Final Draft Complete</u>	<u>Published</u>
1	February 1983	December 1983	March 1984	March 1985
2	March 1983	January 1984	April 1984	April 1985
3	continuing on one month intervals			
4				January 1989

## PART II - CONTINUING EDUCATION

The Continuing Education category consists of training to provide annual update of the training manuals and initial introduction of new technology that has been developed and introduced during the year. The regional training seminars that are conducted on an annual basis will provide one mechanism for introducing new material to the weights and measures officials.

OWM/NBS will serve as the principal technical resource and will coordinate the development of and presentation of all material under this phase of the program.

The Institute for Weights and Measures, Texas Engineering Extension Service, Yuba College, and other educational groups may all become involved, as delivery agents for training material developed under the Continuing Education category of the program.

Industry instructors may be invited to describe new design concepts during regional seminars and other training seminars conducted on an annual basis to update and supplement the primary material.

## PART III - SPECIALIZED TRAINING

This category of the program currently includes two well structured on-going special training programs conducted by NBS: (1) Laboratory Metrology Training and (2) LPG Meters, Taximeters, Rental Car Odometers.

## PART IV - CAREER DEVELOPMENT

Training for administrators and supervisory personnel covering topics such as Program Development, Budget Preparation, Court Procedures, Cost-Benefit Analysis, Computerized Recordkeeping, and Communication at all levels falls outside the scope of this plan and is assumed to be an integral part of State personnel programs. Colleges and universities are the principal source of this type of training.

The Committee requests the authority to establish the necessary sub-committee and working groups to accomplish the above outlined project.

403-1

### OWM TRAINING PROGRAM

OWM reported to the Committee that 24 separate training seminars were conducted in 1981; these included 15 general weights and measures seminars, 4 specialized device seminars, 3 laboratory metrologists seminars, and two seminars on the new Handbook 133. Work is continuing with eight well established regional groups representing about half of the fifty States, and efforts continue toward having all the remaining States become part of a regional group in the future. Industry support in providing instructors, equipment, and handout material in specific areas of regional seminars continues to be outstanding and participation of local service officials continues to increase.

OWM produced its first video tape on a general introduction to Handbook 133, "Checking the Net Contents of Packaged Goods." Six additional tapes are planned which will explain how to make the necessary calculations and apply the procedures to routine package control.

Carroll Brickenkamp and Steve Hasko are offering a two-day seminar on the procedures presented in the Handbook. The regional concept is suggested as being the most effective for this seminar. Several States in a given region can send their package supervisors to a central location for the training.

403-2

#### THE INSTITUTE FOR WEIGHTS AND MEASURES

Mr. Tom Stabler, President of the Institute for Weights and Measures, met with the Committee during its interim meeting and discussed the activities of the Institute during its first full year of operation. Mr. Stabler also presented the following report to the Committee regarding future plans.

"The IWM future program will include training courses, programs, and seminars for weights and measures officials, business and industry (distributors and users), and for special consumer groups.

Formal courses will be designed for specific sectors such as weights and measures, the small businessman (service company, distributor, etc.) and technical personnel who install and service weighing and measuring equipment. The Continuing Education Unit (CEU) will be awarded to participants successfully completing these programs. IWM Publication No. 1 describes the Weights and Measures Curriculum.

The Institute will also participate in seminars conducted for and by these sectors and will provide instruction in administrative and technical subjects appropriate for the audience group.

IWM will sponsor seminars for industry and consumer groups with mutual interests and concerns; for example, for the energy industries, transportation, and consumers of energy; for grocery manufacturers, retailers, and consumers.

IWM educational programs are conducted at appropriate locations convenient in time and distance for attendees. Experience suggests that colleges and universities provide the best facilities for training and the appropriate environment for learning. Adjunct faculty has been selected to assure the expertise essential to professional training. All faculty are experienced in their fields and are talented instructors.

The cost of courses, seminars, and training programs is reasonable because of support by industry and government. Sponsors of programs and faculty bear the largest share of expenses associated with planning, development of training material, and conduct of training classes.

The Institute For Weights and Measures wishes to cooperate with the National Conference on Weights and Measures and the National Bureau of Standards in the planning, development, and implementation of training

programs for the weights and measures sector. We are confident that our aims are complementary and that we can effectively assist in the nationwide program of education and certification."

(Item 403 was adopted)

404

WEIGHTS AND MEASURES PROGRAM EVALUATION

During 1981 the Committee conducted on-sight evaluations of four State jurisdictions (Kansas, New Mexico, Virginia, and West Virginia). On each of these evaluations, a member of the Committee was accompanied by a retired weights and measures official who was carefully selected by the Committee. These four evaluations were conducted for slightly less than \$4,000. We were fortunate to arrange one evaluation while the evaluation team was already in the area on other travel business. Now that eight on-sight evaluations have been conducted, we are in a position to refine our criteria to make them more appropriate to the kind of information needed for a beneficial evaluation of a jurisdiction's program.

The Committee is developing an evaluation booklet to aid a jurisdiction in providing the Committee with advance information necessary in planning an on-sight evaluation.

The Committee met with Mr. Henry Oppermann, OWM metrologist, and discussed at length the desirability of his help in evaluating the metrology laboratory phase of all future evaluations. Future evaluations will include Mr. Oppermann's assessment of a given jurisdiction's metrology laboratory.

Formal reports were developed by the Committee during the interim meetings and were mailed to the respective jurisdictions prior to March 1, 1982. While the Committee acknowledges the Conference open meeting policy, they also feel that the confidential evaluation data being discussed necessitate closed sessions.

In this regard, we wish to thank the other interim meeting attendees for their indulgence.

The Committee plans to conduct a minimum of four (4) evaluations during the coming year and requests the necessary funding subject to the approval of the Executive Committee.

(Item 404 was adopted)

405

ADVERTISING COUNCIL, INC.

Dick Hurley of Fairbanks Weighing Division, Colt Industries, and Committee member, Tom Geiler, had a preliminary meeting with officials of the Advertising Council in New York City during the month of September. The purpose of this meeting was to present information to the Council in support of having the National Conference on Weights and Measures



become a client of the Council thereby laying the groundwork for a nationwide advertising campaign promoting the work of State and local weights and measures officials throughout the United States.

The material was favorably received by the Council and constructive changes were suggested to be made to the application. After the changes to the application are complete, the following action was urged:

- ° Review the revised application and supporting material again with the Council as soon as possible,
- ° Meet with the Board of Directors of the Council early in 1982 for the first of two presentations to the Council;
- ° The second presentation will be before the Council Campaign Selection Committee which will then forward its recommendation to the Board.

Dick Hurley met with this Committee at the interim meeting in January and presented an update on the application. Plans were made to resubmit the application as soon as possible.

Charles R. Cavagnaro, Assistant Director for Consumer Programs, U.S. Office of Consumer Affairs, offered his assistance in seeing this project thru. He will work with Mr. Hurley and the Committee in developing this high priority project.

The Committee will continue to pursue this program and/or other viable alternatives and will report their progress in the 1983 interim report.

The Committee would again like to thank Dick Hurley for the alternative plan that he presented at the open hearing.

(Item 405 was adopted)

406

#### WEIGHTS AND MEASURES TELEPHONE LISTING

The Committee endorses the concept of pursuing White Page listings for Weights and Measures in all telephone directories throughout the United States and urges each jurisdiction to pursue this concept.

The Committee would like to thank Mr. Hurley of Colt Industries for the time and effort expended in the development of this concept.

(Item 406 was adopted)

J. L. Swanson, Alaska, Chairman  
S. J. Darsey, Florida  
T. Geiler, Hyannis, MA  
R. W. Walker, Indiana  
R. W. Probst, Wisconsin  
R. N. Smith, NBS Technical Advisor  
A. D. Tholen, Executive Secretary

# COMMITTEE ON EDUCATION, ADMINISTRATION, AND CONSUMER AFFAIRS

(On motion of the committee chairman, the report of the Committee on Education, Administration, and Consumer Affairs, voting key items 400 through 406 was adopted in its entirety by the Conference. The results of the voting in the House of State Representatives and the House of Delegates under the Conference voting system are totalized in the table that follows. The Conference also authorized the Executive Secretary to make any appropriate editorial changes in the language adopted by the Conference.)

## VOTING RESULTS--Committee on Education, Administration, and Consumer Affairs

Voting Key	House of State Representatives		House of Delegates	
	Yes	No	Yes	No
401	47	0	43	0
402				
403				
404				
405				
406				

REPORT OF THE COMMITTEE  
ON LIAISON

Presented by KENDRICK J. SIMILA, Administrator  
Weights and Measure Division, Department of Agriculture,  
Salem, Oregon

VOTING KEY  
500

INTRODUCTION

The Committee on Liaison submits its report to the 67th National Conference on Weights and Measures (NCWM). The report consists of the tentative report as offered in the Conference Announcement and as amended by this final report. The report represents recommendations of the Committee that have been formed on the basis of written and oral comments received during the year and oral presentations made during the general meeting of the Committee.

501

STATE MEASUREMENT NEEDS STUDY

The Committee received an oral report from Dr. C. G. Gravatt, Deputy Director of the National Measurement Laboratory, National Bureau of Standards (NBS), on the recently completed draft report entitled "NBS Support of State Weights and Measures Needs." The report was presented as the final product of a study recommended in 1978 by a review panel of the NBS Directorate for Measurement Services. The panel, chaired at the time by Sid Andrews from Florida, expressed considerable concern that State and local weights and measures regulatory agencies were not prepared to meet the challenges of increasing new technologies and practices in the modern marketplace. The panel specifically requested NBS to assess the weights and measures system and its current needs. NBS agreed to conduct the study and, through its Planning Office, provide funding for OWM to initiate the study in 1978.

Data for the study were gathered primarily from within seven states in which Office of Weights and Measures (OWM) professional personnel (and/or the study contractor) obtained information through personal interviews with State and local government employees with weights and measures responsibilities, and with representatives of public and private organizations interacting with weights and measures officials, such as Federal agencies, trade associations, device manufacturers and service units, and individual commercial enterprises. In all, about 100 individual visits were made, and over 200 members of the weights and measures community were involved. The conclusions, however, were not written by any of the OWM staff who were involved in the data collection but were, rather, the opinions of a contractor.

Dr. Gravatt's presentation was essentially a review of the draft project report provided by the contractor, Dr. Sanford B. Newman, a retired former NBS employee. The report is currently under review within NBS, specifically OWM, the NBS Editorial Review Board, and the Office of NBS Director. The conclusions of the report do not necessarily represent NBS policy.

Reflecting the orientation of the report, Dr. Gravett's presentation focused on analyzing the support NBS has historically provided the weights and measures community. This point is spelled out very clearly in the lead paragraph of the report's Executive Summary:

"This study, carried out on a contract funded by the Planning Office of the National Bureau of Standards (NBS), reports on the examination of NBS programs that support the needs of the State and local weights and measures community (primarily the NBS Office of Weights and Measures (OWM).) ...The focus of the study and this report, however, is the National Bureau of Standards' role in this many faceted system and ways in which NBS can better meet the needs of these users." (Page iii)

Three-quarters, i.e. 60 of the 80 pages, of the narrative part of the report is given to historical analysis of NBS' role, and one-quarter, i.e. 20 of 80 pages, focuses on the results and conclusions based on perceived needs gleaned from the survey. Mention was made of the needs "frequently cited in interviews" and included resources, training, public understanding of the importance of weights and measures, establishment of a national prototype approval system, and greater uniformity in weights and measures requirements. (Page iii) The report drew no formal conclusions but set forth "An Agenda for Addressing State Weights and Measures Needs." (Page 72) in which it called for criteria to be established for setting priorities for OWM services, and then listed nine specific activities or policies that "might help to meet State and local weights and measures needs." (Page 73)

Listed in the agenda were the following:

- Initiate a realistic dialog with the leadership of the National Conference on Weights and Measures.
- Review support of weights and measures administration and establish priorities.
- Offer only training that can be justified by relevance to mission, unique capability, and staff competence.
- Increase support of standards laboratories.
- Obtain other agency support for activities that overlap or are subsumed in other agency missions.



- Strengthen and support NCWM mechanisms.
- Assume an active role in coordinating prototype approvals.
- Provide guidelines for data collection and management.
- Maintain current data banks in OWM as needed.

Questions directed to Dr. Gravatt at the conclusion of his report indicated the Liaison Committee was deeply disappointed to learn that the long-awaited report had not focused on an in-depth analysis of the State and local weights and measures needs as originally intended but had been admittedly reoriented by the contractor to emphasize past (and future) services provided and to be provided by NBS to the weights and measures community. To the Committee, the study still clearly leaves unanswered the question of what the State and local needs, in fact, are. Also, the emphasis of this study is on what actions NBS might undertake to address perceived needs - and the Committee is not convinced that those needs were sufficiently documented in this report to justify being the basis for decisions on the activities or policies recommended in the report to NBS.

(Item 501 was adopted)

502

#### FEDERAL AGENCY ACTIVITIES

##### 502-1 FEDERAL GRAIN INSPECTION SERVICE

The Committee met with representatives of the Federal Grain Inspection Service (FGIS) to hear a status report on the Master Track Scale Program. Present were Dick Pforr, Ben Banks, and Tim Decker. A highlight of Mr. Pforr's report was that during calendar 1981 all master scales that were in service were tested. Mr. Pforr's report also listed a number of other weighing tasks that were accomplished.

The Committee was generally pleased with the progress that FGIS has made in the Master Track Scale Program. The Scale Testing and Weighing Branch of FGIS appears to have met their initial objectives and the program is functioning without major problems.

It was apparent from discussions with Mr. Pforr, that confusion exists over how often the master standards at Clearing, Illinois should be reverified by National Bureau of Standards. In 1981 the National Conference on Weights and Measures voted on (Item 502-3) and endorsed a five-year reverification schedule for the master standards. The Committee feels that the management of National Bureau of Standards should initiate affirmative steps to ensure that traceability of the master standards is maintained in a manner consistent with the desires of the Conference.

Prior to the transfer of the test cars to FGIS, Weights and Measures officials expressed concern regarding the continued traceability of

railroad track scales. It should be noted that during a recent reduction in force planning session, the management of FGIS considered eliminating the test car program. The Committee requests the Chairman of the Conference to contact the appropriate officials in FGIS and express grave concern regarding the possibility of eliminating the Master Track Scale Program.

The Committee wishes to again emphasize that FGIS cannot certify scales. Therefore, FGIS must have the cooperation of State weights and measures officials so that all FGIS tested devices are simultaneously certified by the appropriate State officials. In reviewing action by the 1980 Conference, the Liaison Committee recommended that the Conference develop recommendations to its member jurisdictions on ways to become involved in the testing and certification of railroad track scales. The 1980 report suggested that an ad hoc committee consisting of representatives of NCWM, NBS, and AAR be established to develop recommendations. The need for the recommendations apparently still exists.

The Committee recognizes and is concerned that the needs of industry for accuracy in railroad track scales covers a broad range of users beyond the grain trade. Industries such as coal, steel, mineral processing, and others that employ track scales in their operations should also be able to receive appropriate track scale calibration and certification services on a timely basis in a national program of this type. Because the demands for large-capacity calibrations are many, the FGIS Administrator must approve non-FGIS related requests. Therefore, all weights and measures officials are urged to coordinate requests for FGIS services through the State weights and measures offices. The Committee feels that requests originating from State weights and measures officials will receive stronger consideration.

During the session with representatives from FGIS, a question was raised regarding the accuracy of tare weights printed on railcars. The FGIS representatives noted that they often observe substantial differences between actual weights of railcars and labeled tare weights. The Committee contacted the management of FGIS about identifying to State weights and measures officials those rail cars whose stenciled tare value is out of tolerance and received a reply from John W. Marshall, Acting Director, Field Management Division, that they were unable to assist us in this matter.

(Item 502-1 was adopted)

#### 502-2 NET WEIGHT

Proposed net weight labeling regulations were published in the Federal Register on August 8, 1980. Despite written reiterations of the Conference's interest and support, the Food and Drug Administration (FDA) and the United States Department of Agriculture (USDA) have done nothing to advance action on the published proposals.

On January 26 and 27, 1982, the Liaison Committee met with representatives of the FDA and USDA. They advised the Committee that agency resources, priorities, and procedures are such that a timetable for action, if any, could not be predicted.

The Committee recommends that the Conference consider the submission of Handbook 133 to the FDA and USDA as an alternative proposal.

(Item 502-2 was adopted)

#### 502-3 AEROSOL PACKAGE PRODUCTS

In a July 10, 1981 letter the Food and Drug Administration notified the Liaison Committee that proposed action on the May 4, 1979 NCWM petition would be published in the Federal Register by the middle of August, 1981.

On January 26, 1982 Deputy Associate Commissioner William Randolph advised the Committee that the intended proposal had been misdirected within the agency and will now require a new "decision" memo to, and concurrence from, the Department of Health and Human Services before it can be published. No publication date was predicted. Mr. Randolph suggested that in the meantime, section 10.3 of the Model State Packaging and Labeling Regulations will require most aerosol package labelers to comply with the position espoused by the Conference.

(Item 502-3 was adopted)

#### 503 NATIONAL CONFERENCE ON WEIGHTS AND MEASURES (NCWM) - NATIONAL BUREAU OF STANDARDS RELATIONSHIPS

On June 18, 1981 Mr. James R. Bird, State of New Jersey, and Chairman of the Study Group represented the Conference at a hearing on the NBS Organic Act that was scheduled by the Subcommittee on Science, Research, and Technology of the U.S. House of Representatives. Mr. Sydney Andrews, State of Florida, and Mr. Ken Hammer, Scale Manufacturer's Association also gave testimony at the hearing.

The testimony by NCWM members stressed the measurement needs of the States and of industry, and detailed their concerns regarding the lack of adequate support and services provided by the National Bureau of Standards. Specific recommendations and amendments to the Act were offered.

Primarily, the testimony by NCWM members recommended changes to the NBS Organic Act that would mandate NBS to provide services to the States through its Office of Weights and Measures and to serve as sponsor of the National Conference on Weights and Measures. It was also recommended that the composition of the Visiting Committee (which reviews the NBS program) be changed to require that two of its members be from the State regulatory community.



Representatives of the NCWM will meet again with the Subcommittee. The date has tentatively been scheduled for sometime in April. The House Subcommittee has invited the Conference Chairman to testify before a Subcommittee appropriations hearing to be held February 10.

The associate membership has indicated their intention to testify at hearings to amend the Organic Act. The Scale Manufacturers Association (SMA) adopted a position statement at their Fall Meeting regarding amendment to the Organic Act for the National Bureau of Standards.

The SMA position statement contains six recommendations:

1. That the Organic Act for the NBS be amended to mandate, rather than authorize, the Secretary of Commerce, through National Bureau of Standards, to undertake the custody, maintenance, and development of the national standards of measurement.

2. That the Organic Act be amended to mandate that the functions of the current Directorate of Measurement Services (DMS) be assigned directly to the Office of the Director of NBS.

3. That OWM budget and personnel levels projected on the DMS five-year plan (1981-1986) be implemented as scheduled, even if this requires reallocation of existing NBS resources.

4. That the NBS Visiting Committee be expanded from five to nine members and that one of the nine be drawn from the scale manufacturing industry.

5. That the U.S. House of Representatives Subcommittee on Science, Research, and Technology maintain oversight of NBS budget and personnel levels to insure that the mandate recommended above is carried out.

6. That the master plan incorporating all the essential elements for a U.S. commercial weights and measures control plan be adopted and implemented by all parties concerned, including NBS, the National Conference on Weights and Measures, and industry.

Dr. Ambler has indicated that OWM and NCWM will be as secure and functional as possible under the organization of the National Bureau of Standards.

Mr. Tholen, Chief, Office of Weights and Measures, National Bureau of Standards, met with the Committee and discussed his proposed long range plan for the Office of Weights and Measures designed to expand services to the State and local jurisdictions, industry, and others in the weights and measures area. The long range five-year plan as proposed by Mr. Tholen follows:



## PROPOSED PLAN\*

### I. INTRODUCTION

#### A. Purpose

To provide the central basis, within the U.S., of physical standards of measurement and the means for their realization, in order to assure meaningful legal measurement regulations both within this country (Weights and Measures) and overseas (Legal Metrology).\*

#### B. Statutory Basis

Statutory authority for the operations of the Office of Weights and Measures is found in the ENABLING ACT (15 U.S.C. 271) of the National Bureau of Standards, where, in the enumeration of Bureau functions, authorization is made for:

- "the provision of means and methods for making measurements consistent with those [the national] standards,"
- "cooperation with other governmental agencies and with private organizations in the establishment of standard practices, incorporated in codes and specifications," and
- "advisory services to Government agencies on...technical problems."

Authorized activities are:

- "the study and improvement of instruments and methods of measurements,"
- "cooperation with the States in securing uniformity in weights and measures laws and methods of inspection,"
- "prosecution of such research in engineering...as may be necessary to obtain basic data pertinent to the functions specified herein,"
- "the compilation and publication of general scientific data resulting from the performance of the functions specified herein...when such data are of importance to...manufacturing interests or to the general public and are not available elsewhere," and
- "the conduct of such studies, investigations, and standards development activities as are necessary to achieve the objectives of the Fair Packaging and Labeling Act."

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\*Paraphrased from "Long Range Plan, 1981-1985, National Measurement Laboratory" page III-8. This plan is currently under review by NBS management.

## C. Roles

### 1. State and Local Government.

Regulatory authority for the enforcement of weights and measures laws and regulations rests with State and local jurisdictions.

The specific responsibilities of the States extend into these broad economic activities as stated above. There is a total of 3,000 State and local weights and measures officials in the United States whose task is to provide for commercial equity between buyers and sellers dealing with 2603 billion dollars worth of commerce. For example, to provide the assurance of commercial accuracy and equity, these 3,000 State and local officials must regulate 2.7 million commercial devices and 1.1 million outlets for prepackaged commodities.

Weights and measures officials enforce laws and regulations governing packaged goods and measurement devices (such as scales, gasoline pumps, taximeters, and fuel oil meters). There are more than 775 weights and measures jurisdictions in the United States.

### 2. The Office of Weights and Measures

The program goals of OWM are based on the NBS Enabling Act; that is, to provide assistance to State and local weights and measures officials, business and industry, leading to accurate and uniform commercial measurement. However, the amount of assistance required by clientele groups has been expanding with the economy and with increased numbers of new commercial measurement systems.

The Office of Weights and Measures (OWM) provides technical resources to State and local agencies, businesses and industries, and consumer organizations, thus channeling NBS measurement capability into the marketplace and translating this capability into understandable and problem-specific responses.

OWM transfers weights and measures technology, facilitates its application in commercial transactions, and promotes national voluntary weights and measures standards by working with Federal, State, and local regulatory officials, manufacturers, trade associations, packagers, and consumers. OWM is the only central resource working toward equity and uniformity in weights and measures laws, regulations, and inspection methods among these jurisdictions.

NBS sponsors the National Conference on Weights and Measures (NCWM) an organization of State and local regulatory officials and representatives of Federal agencies, industry, and consumer organizations. The Conference serves as a national forum and develops and adopts model laws and regulations, technical codes and recommendations which have provided the legal and technical basis for

weights and measures administration throughout the Nation. OWM staff members serve major roles in the Conference, such as executive secretary and technical advisors to its committees.

By stressing equity and uniformity and by promoting performance criteria for weights and measures administration, inspection, laboratory practices, and enforcement, OWM has had a significant role in facilitating interstate commerce, making possible a mass market for packaged goods and for the manufacturers of weighing and measuring devices, and assuring the consumer full quantity value for dollars spent. The OWM program uses the broad expertise found at NBS to help achieve its objectives. NBS does not have regulatory authority; its success in supporting a uniform intergovernmental weights and measures system is an ongoing activity requiring negotiation, compromise, and liaison with the 50 States and several hundred county and city jurisdictions, associated Federal agencies and industry. As new technologies in measurement are introduced into the marketplace, the primary resource for technical expertise for the States and local jurisdictions is OWM.

## II. TRENDS AND ISSUES

### A. Trends

1. Measurement instruments used in retail trade are no longer merely lower cost derivatives of laboratory instruments. Manufacturers of these instruments are discovering the enormous retail market outlet and using space-technology-spinoff electronics (e.g., automatic checkout) to produce original, completely new devices for this retail market without the use of the smaller scientific market "test bed".
2. Metric conversion is affecting whole industries whose products and devices had had extremely long lifetimes--gas pumps, large capacity scales, food-processing and packaging machinery, etc.
3. Historically, State weights and measures agencies have come to NBS for technical support and problem solving. Increasingly, State agencies are approaching NBS to represent them and coordinate their needs with other Federal agencies.
4. New concepts of quality and quantity will be called for (e.g., drained weight and nutrient and ingredient labeling in food packages and protein measurement in wheat grain sales), current methods of measurement will be shown to need modification.
5. NBS constituencies are becoming more vocal in stating needs for transfer of technology from NBS and for leadership in the evolution of the Weights and Measures system domestically and internationally.

6. More industry associations/societies are requesting NBS measurement assistance to meet technical measurement requirements of Federal regulatory agencies.

B. Significance of Trends to NBS

1. There is an increasing need for assurance of measurement accuracy in broader areas of commerce (wholesale and production point) which will increase the need for State weights and measures oversight; NBS will be asked to help with new measurement methodologies and tighter device model performance specifications for accuracy/precision.
2. States are increasingly concerned about the need for problem-solving for national uniformity; NBS will be asked to meet the challenge and increase its coordination of constructive State-to-State interactions.
3. There are increasing requests for NBS to operate a clearing house for weights and measures information (measurement procedures, devices, laws and regulations, violations, legal decisions, etc.).
4. There are increasing requests for prototype device testing and certification of new weighing and measuring devices (1) to meet exporters' needs, (2) to assure procurement of reliable equipment, and (3) to eliminate need for identical evaluation by individual local authorities; this places new demands on OWM for provision of testing procedures, check lists, and overall management of a developing system.
5. The resources available to OWM have been diminishing in purchasing power and size of staff.

C. Issues

1. Panel Review. For the past several years, the NAS Panel that reviews the OWM program has voiced concerns about the erosion of resources applied to support of the commercial weights and measures program. The most recent Panel was especially explicit in stating its concerns. Basic observations made by the Panel were:

- a. The organic act authorizes the Bureau to
  - provide leadership to assure uniformity in accurate commercial measurements
  - disseminate results of research achievements
  - provide basic standards of measurement
- b. OWM was the implementing agent of the Organic Act.



- c. Increased NBS action is necessary to avoid abandoning this nation to a growing chaos among government jurisdictions at all levels and among all sectors in a scramble to retain or regain measurement integrity in an ever complicating environment.
- d. The calibration and measurement functions of the Bureau are atrophied at a time when they should be enhanced; neglected when they should be emphasized.
- e. There is a disparity between mission statements in the NBS LRP and limited resources. Mission statements lack express recognition of fundamental NBS basic standardization and calibrating responsibilities.
- f. The lack of forceful NBS leadership can result in reassignment of its role to other Government Departments.

Specifically regarding the OWM program, the Panel concluded that:

- a. There is inadequate concern by NBS for the needs of the system of commercial measurement in the country;
- b. Efforts to develop educational programs is commendable and the Panel urges recognition of two different types: university level, and technical.
- c. NBS and DoC should make a conscious and high-level decision to provide support and establish and implement a clearly defined educational program.
- d. They are pleased with establishment of the regional seminars conducted in conjunction with industry and encourage further development.
- e. OWM should be commended for establishing State regional MAPs and they encourage inclusion of all 50 States at earliest possible time.
- f. OWM should be complimented on plan to upgrade State metrologists but feels that 5 years is too long for completion.
- g. Development of at least one advanced metrologist should be attained for each State.
- h. It is pleased with progress toward reorganizing the NCWM, including new membership format and upgrading of regional associations.
- i. Impressive progress has been made in issuing hand-books on a timely basis through use of word processing.

j. It would like to see early revision of HB 82.

Both the general observations and specific conclusions of the Panel are tabulated in Table 4 under the column headed "NAS Panel."

2. Congressional Testimony. Three representatives of the Weights and Measures constituencies were invited to testify before the House Subcommittee on Science, Research, and Technology on June 17 and 18, 1981. Highlights of their testimony are summarized in three Tables:

Table 1 - Mr. Sydney Andrews

Table 2 - Mr. James Bird

Table 3 - Mr. Ken Hammer

These highlights are also summarized in Table 4 under the three columns headed "Congressional Testimony."

3. Measurement Needs Study. Under the auspices of the NBS Planning Office, a "Measurement Needs Study" was undertaken. The scope of the study includes Weights and Measures considerations with the goal to

"identify and assess the needs at the State level for accurate and uniform physical or chemical measurements that derive from government laws and regulations."

Based on State visits involving interviews with government officials and industry spokespersons, a broad range of needs has been identified. The needs identified have been summarized in Table 4 under the column headed "Measurement Needs Study" (needs as expressed in trip reports and interviews).

TABLE 1

Sydney Andrews

- o Basic mission of NBS includes standards for Weights and Measures.
- o Other missions are secondary.
- o Calibration and measurement functions have atrophied when they should have been enhanced, neglected when they should have been emphasized.
- o NBS conducts outstanding research in high technology.
- o NBS considers technical delivery as a task too routine.
- o The subcommittee might study possible rephrasing of the Organic Act to emphasize importance of basic mission, even if it may seem mundane.
- o In recent years Weights and Measures officials have become increasingly alarmed at apparent diminishing interest of NBS management reflected by low priorities given to weights and measures for programs and initiatives.
- o In spite of rapid growth in needs, OWM is smaller than ten years ago.
- o This program should emphasize research to keep Weights and Measures officials at leading edge of new demands.
- o Reduced emphasis on State support by NBS damages the economy and NBS image.
- o NBS should be the focal point for all matters pertaining to Weights and Measures.
- o OWM initiative to bring educational institutions into picture is urgent, but resources are needed.
- o The NBS role in international standards development needs to be stronger.
- o Organic Act should be redrawn to emphasize measurement and standards needs plus a larger and more representative Visiting Committee.
- o If NBS does not recognize need for new action, presence of OWM in NBS should be reconsidered; amendment of Organic Act would be necessary.

TABLE 2

James Bird

- o Amend portions of Organic Act related to Weights and Measures for:
  - more specificity, and to
  - mandate responsibilities.
- o State Weights and Measures responsibilities are increasingly dependent on national measurement technology (cited Stevenson-Wydler Act).
- o OWM (NBS) is transfer agent for that technology.
- o OWM (NBS) support services are necessary to develop, coordinate, and maintain equity in the marketplace.
- o State directors are complaining because needs are not being met.
- o Expand State laboratory program beyond mass.
- o Mandate continued sponsorship of the NCWM.
- o Continue FPLA responsibilities and transfer these back to OWM.
- o Participation in OIML necessitates additional staff in OWM.
- o Expand OWM prototype approval activities to match growing national and international needs.
- o Put OWM in position to support State difectors in program evaluation and development.
- o Return Railroad Track Scale Program to NBS/OWM.
- o Reconstitute Visiting Committee to include:
  - two members experienced in State regulatory programs
  - two members expert in commercial technology and processes



TABLE 3

Ken Hammer

- o Argues not against other activities of NBS but for increased involvement in commercial weights and measures.
- o Concerns are simple but resolution is not:
  - NBS is positioned to provide coordinating leadership to loose, dispersed, decentralized U.S. System of Weights and Measures
  - Since the mid-60's many challenges have been made to that System:
    - consumers,
    - technical advances,
    - metrication,
    - regulation (FPLA),
    - international standardization.
  - Since the mid-60's, NBS leadership has been inadequate.
- o NBS scientific curiosity and ingenuity combined with pressures from new legislative mandates have combined to create unaffordable neglect of weights and measures.
- o GAO Report of April 22, 1981 omits significant reference to weights and measures role.
- o CRS Report of April 22, 1981 omits significant reference to weights and measures role.
- o CRS Report of May 13, 1981 finds applied measurements in NEL but OWM in NML.
- o CRS Report does not recognize lack of metrological control plan in U.S.
- o Notes placement of weights and measures aspects of Federal Packers and Stockyards Administration in DoA, as well as FGIS. Trend could extend to coal and other commodities leading to a spectrum of Federal bureaucracies.
- o Federal leadership necessary for GATT and OIML.
- o Suggests thoughtful NBS initiatives to represent real needs of existing system (Weights and Measures).

TABLE 3 (cont.)

- o OWM is submerged in NBS organization.
- o OWM staffing has decreased from 29 (1970) to 11.
- o Broadening Visiting Committee desirable.
- o Restoration of traditional emphasis on commercial weights and measures in NBS.
- o Propose restoration of leadership or remove weights and measures activity from NBS and place it elsewhere (DoC or DoA).

TABLE 4

Summary of Issues

	NAS PANEL	CONGRESSIONAL TESTIMONY			MEASUREMENT NEEDS STUDY		
		ANDREWS	BIRD	HAMMER	STATE OFF.	INDUS. BUSIN.	NBS/OWM
<u>LEGISLATIVE</u>							
Organic Act,							
Reaffirm, Mandate	X	X	X	X	X	X	
Add W&M representative to visiting committee		X	X	X			
Uniformity in W&M laws and regulations					X	X	X
Avoid Federal preemption	X		X	X	X	X	
<u>ORGANIZATION</u>							
NBS support OWM or move out	X	X		X	X		
Elevate OWM in NBS organization	X	X		X			
<u>RESOURCES</u>							
Increase OWM staff and funding	X	X	X	X	X	X	
Increase input from NBS Centers	X	X	X	X			
<u>PROGRAMATIC</u>							
a. Reassurance of NBS Continued Support	X	X	X	X	X		
b. Reorganization	X				X		X
c. Committee Support						X	X
d. Coordination of Regional Assns.	X				X		X

TABLE 4 (cont.)

	NAS PANEL	CONGRESSIONAL TESTIMONY			MEASUREMENT NEEDS STUDY		
		ANDREWS	BIRD	HAMMER	STATE OFF.	INDUS. BUSIN.	NBS/OWM
<u>PROGRAMATIC</u> (cont.)							
e. Weighing Systems					X		
Standards					X		X
Test Equipment					X		X
Handbooks	X						X
Training	X				X	X	X
f. Measuring Systems					X		
Standards					X		X
Test Equipment					X		X
Handbooks	X						X
Training	X				X	X	X
g. Package Inspection					X		
Standards					X	X	X
Test Equipment					X		X
Handbooks	X				X	X	
Training	X				X	X	X
h. Special, grain moisture							X
Standards					X	X	X
Test Equipment					X		X
Handbooks	X				X		X
Training	X				X	X	X
j. Upgrade Metrologists	X						
(1) Basic Seminar	X	X			X		X
(2) Intermediate Seminar	X	X			X		X
(3) LAP					X		X
k. Measurement Assurance	X						
(1) Lab. oversight					X		X
(2) RMAP's					X		X



TABLE 4 (cont.)

	NAS PANEL	CONGRESSIONAL TESTIMONY			MEASUREMENT NEEDS STUDY		
		ANDREWS	BIRD	HAMMER	STATE OFF.	INDUS. BUSIN.	NBS/OWM
<u>PROGRAMATIC (cont.)</u>							
1. Expand Lab Capabilities	X		X		X		
(1) Moisture/Grain	X		X		X	X	X
(2) Pressure, Temp, etc.	X		X		X	X	X
m. Upgrade Existing Cap.							
(1) Mass					X		X
(2) Volume			X		X		X
(3) Other			X		X		X
n. R.R. Track Scale	X		X				
o. Laboratory Interaction					X		
p. National Metrology Control System	X		X	X		X	
q. National Type Approval Program	X	X	X	X	X	X	X
(1) Institutional					X	X	X
(2) Technical					X	X	X
(3) Operational					X	X	X
r. International Legal Metrology (OIML, GATT, etc.)	X	X	X	X	X	X	
s. Program Evaluation Certification	X		X		X		
t. Laws and Regulations (Uniformity)			X	X	X	X	X
u. Consultation (Telephone, Mail)					X	X	X
v. Management Systems			X		X		
w. Metric Conversion				X			
(1) Model Plans							
(2) Technical Consultation							

### III. GOALS AND OBJECTIVES

#### A. NBS Goals

The goals of the Office of Weights and Measures derive from the Agency goals, particularly Goal One, "To maintain and improve the national measurement system for industry, commerce, State and local governments, and Federal agencies."

#### B. OWM Goals

The long-term goals of the Office of Weights and Measures program are to:

1. Create and maintain an effective, uniform, national system of measurement accuracy, fairness, and protection for buyer and seller in all commercial transactions involving determination of quantity.
2. Provide the technical basis for maintenance of State measurement capabilities consistent with national objectives.
3. Promote uniformity in commodity transfer in State weights and measures laws and regulations and remove impediments to the free flow of interstate commerce due to variations in local codes, requirements, and enforcement practices.
4. Provide technical assistance in the development and application of new and improved technology and investigate and solve technical measurement problems in weights and measures.

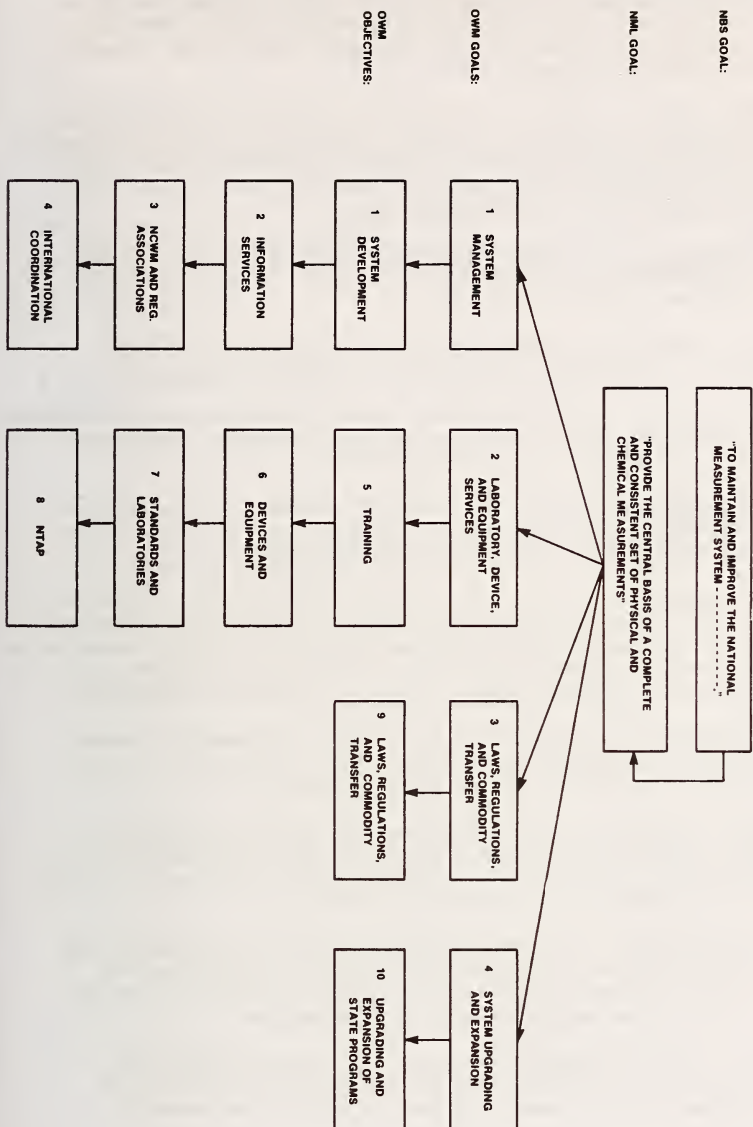
#### C. OWM Objectives

The OWM program consists of 10 objectives designed to accomplish the NBS and OWM goals. These objectives, as associated with the goals are listed below and paraphrased on Chart 1.

Goal 1. Create and maintain an effective, uniform, national system of measurement accuracy, fairness, and protection for buyer and seller in all commercial transactions involving determination of quantity.

Objective 1. Provide leadership and coordination among State and local weights and measures officials and between them and Federal agency and private sector organizations.

Chart 1  
GOALS AND OBJECTIVES  
(PARAPHRASED)



Objective 2. Prepare, maintain, and disseminate, in conveniently useable form, information, data, and guidance on weights and measures programs, practices, systems, and units to satisfy needs of the Federal Government, State and local governments, educational institutions, business and industry, and the general public.

Objective 3. Sponsor the NCWM as a national forum and assist, maintain, and improve Conference organization and operations for the solution of weights and measures problems, promotion of effectiveness and uniformity in State and local weights and measures regulation and enforcement.

Objective 4. Provide technical assistance to and coordinate domestic weights and measures participation in international legal metrological activities.

Goal 2. Provide the technical basis for maintenance of State measurement capabilities consistent with national objectives.

Objective 5. Design, develop, and coordinate uniform nationwide training in weights and measures administration, inspection, enforcement, and laboratory metrology.

Objective 6. Provide the bases for uniformity of design and performance specifications, tolerances, and test methodology for commercial weighing and measuring systems.

Objective 7. Provide traceability to the National Standards in the commercial measurement system by developing, providing where necessary, and maintaining the system of State laboratories including procedures, protocols, measurement assurance, and standards of mass, length, volume, and laboratory apparatus.

Objective 8. Evaluate new measurement instruments, systems, and field standards to determine their conformance with published standards of design and performance.

Goal 3. Promote uniformity in commodity transfer and State weights and measures laws and regulations and remove impediments to the free flow of interstate and commerce due to variations in local codes, requirements, and enforcement practices.

Objective 9. Provide the basis for equity-in-trade through support of the development and adoption of model laws and regulations and conformity of commodity packaging, labeling, distribution, method of sale, and inspection.

Goal 4. Provide technical assistance in the development and application of new and improved technology and investigate and solve technical measurement problems in weights and measures.



Objective 10. Transfer additional calibration capabilities to State metrology laboratories for support of their regulatory programs and industry needs.

#### IV. THE PLAN

##### A. Approach

The Plan for attainment of the objectives is presented without consideration of resource constraints. Each objective is described below in terms of tasks and the resources (in professional staff-years) expended on each task in FY81, as well as estimated resources needed in each of the following fiscal years (82-86). A description of each task is contained in Section V including estimates of resources required.

##### B. Objectives

A tabular presentation of each objective has been prepared which provides:

1. a statement of the Objective,
2. a listing of the Tasks associated with each Objective,
3. resource requirements for each Task, and for all Tasks within an Objective.

TABLE 5

Objective 1. Provide leadership and coordination among State and local weights and measures officials, and between them and Federal agencies and private sector organizations.

OBJECTIVE/TASK	RESOURCES (STAFF YEARS)					
	81	82	83	84	85	86
A. Coordinate maintenance and development of the national legal metrological system through the development of a comprehensive concept of a "national metrological system."	0.2	0.1	0.1	0.1	0.1	0.1
B. Maintain liaison and coordinate interaction of Federal, State, industry, and professional organizations (e.g., NASDA, USDA, FDA, FTC, ASTM, ANMC, USMB, NCSL, SMA, GPMA, GMA, MIF, API, etc.) in weights and measures activities.	0.5	0.5	0.5	0.5	0.5	0.5
C. Provide technical assistance to the NCWM in the design and conduct of the Weights and Measures Program Review Plan.	0.1	0.2	0.2	0.2	0.2	0.2
D. Establish data needs of State programs including methods of collection, analysis and feedback for operational improvements, and program planning and justification.	-	0.3	0.3	0.3	0.5	0.5
E. Develop and publish new handbook (replacing current HB-82, "Weights and Measures Administration," which was last issued June 1962).	-	-	-	-	0.2	0.5
F. Develop plan for State participation with the FGIS in conduct of the R.R. Track Scale Calibration Program.	0.1	0.1	-	-	-	-
G. Work with the NCWM to develop plan for and provide technical support for implementation of inspector certification program.	-	-	0.4	0.4	0.5	0.2
H. Conduct weights and measures portion of the "Measurement Needs Study."	0.3	0.3	-	-	-	-
TOTAL	1.2	1.5	1.5	1.5	2.0	2.0

TABLE 6

Objective 2. Prepare, maintain, and disseminate, in conveniently usable form, information, data, and guidance on weights and measures programs, practices, systems, and units to satisfy the particular needs of the Federal Government, State and local governments, educational institutions, business and industry, and the general public.

OBJECTIVE/TASK	RESOURCES (STAFF YEARS)					
	81	82	83	84	85	86
A. Maintain data bank and provide information services to answer requests for information on weights and measures personnel, jurisdictions, resources, legislation, policy, and programs.	0.3	0.3	0.3	0.3	0.4	0.4
B. Promote weights and measures principles and techniques through participation at conferences and meetings of organizations in both the public and private sectors.	0.2	0.2	0.2	0.2	0.3	0.4
C. Promote professionalism and State program growth through establishment of position descriptions, visits with State officials, talks, brochures, etc.	0.1	0.1	0.1	-	-	-
D. Develop and update Directory of State Programs.	0.2	0.3	0.3	0.2	0.1	-
E. Develop and operate automated Weights and Measures issue file.	0.1	0.1	0.1	0.3	0.3	0.1
F. Formalize publication of Technical Notes and Guidelines on weights and measures issues in order to provide insights and understanding for Weights and Measures officials and industry.	-	-	-	-	0.2	0.3
G. Develop Weights and Measures quarterly newsletter and calendar.	-	-	-	-	0.1	0.2
TOTAL	0.9	1.0	1.0	1.0	1.4	1.4

TABLE 7

Objective 3. Sponsor the NCWM as a national forum and assist, and improve Conference organization and operations for the solution of weights and measures problems and for promotion of effectiveness and uniformity in State and local weights and measures regulation and enforcement.

OBJECTIVE/TASK	RESOURCES (STAFF YEARS)				
	81	82	83	84	85
	81	82	83	84	85
A. Plan, organize, and conduct annual meeting (July) which includes site selection, speaker program, hotel facilities, general arrangements.	0.3	0.3	0.3	0.3	0.3
B. Plan and conduct interim meetings of five Conference standing committees, meetings of Task Forces and subcommittees, and special seminars.	0.3	0.3	0.3	0.3	0.3
C. Develop and propose organizational changes to increase self-sufficiency of Conference membership and improve procedures, such as voting and study issues.	0.2	0.2	0.2	0.2	0.2
D. Develop and coordinate interactions of the NCWM with the Regional Associations.	0.2	0.2	0.2	0.5	0.5
E. Develop automated index of NCWM proceedings and publish new index (last index was NBS SP 377 dated February 1973).	-	-	-	0.2	0.2
F. Compile, edit, and publish annual Proceedings.	0.2	0.2	0.2	0.2	0.2
G. Maintain NCWM membership plan and coordinate interactions of the NCWM with its constituencies.	0.3	0.3	0.3	0.3	0.3
TOTAL	1.5	1.5	1.5	2.0	2.0



TABLE 8

Objective 4. Provide technical assistance to, and coordinate domestic weights and measures participation in, international legal metrology activities.

OBJECTIVE/TASK	RESOURCES (STAFF YEARS)					
	81	82	83	84	85	86
A. Work with the International Organization of Legal Metrology (OIML) to improve opportunities for exporting measuring equipment, influence international adoption of measurement requirements and procedures, participate in development of international standards, and coordinate adoption of OIML recommendations by NCWM and the States and NTAP.	0.4	0.4	0.4	0.8	1.0	1.0
B. Facilitate development of International standards program for U.S. by working with CODEX, EEC, ISO, etc.	-	-	-	0.2	0.2	0.2
C. Establish and maintain formal relationship with the Canadian legal metrology organization.	-	-	-	0.2	0.2	0.2
D. Establish and maintain formal relationship with the Mexican, Panamerican, and other Central American legal metrology organizations.	-	-	-	0.1	0.2	0.2
E. Establish and maintain formal relationship with the Jamaican and other Caribbean legal metrology organizations.	-	-	-	0.1	0.2	0.2
F. Host visitors and cooperate with metrological counterpart nations worldwide.	0.1	0.1	0.1	0.1	0.1	0.1
G. Provide coordination with foreign governments in establishing and conducting weights and measures laboratory programs in support of national objectives (e.g., ITA).	-	-	-	0.1	0.1	0.1
TOTAL	0.5	0.5	0.5	1.6	2.0	2.0

TABLE 9

Objective 5. Design, develop, and coordinate uniform nationwide training in weights and measures administration, inspection, enforcement, and laboratory metrology.

OBJECTIVE/TASK	RESOURCES (STAFF YEARS)				
	81	82	83	84	85
A. Develop, plan, and assist in establishment of weights and measures "academy" at colleges or universities.*	0.2	0.2	-	-	-
B. Plan and conduct technical training sessions in weights and measures management for State and local weights and measures officials and members of industry.	0.2	0.2	0.4	0.1	0.1
C. Plan and conduct field training sessions in special technical areas, such as LP Gas meter, taximeter, rental car odometer testing, and package checking.	0.2	0.4	0.4	0.3	0.3
D. Attend and provide training at State, regional, and national weights and measures and industry meetings and conferences.	0.5	0.5	0.5	0.4	0.3
E. Develop and update modularized training packages for State and local weights and measures officials to increase training efficiency and coverage.	-	-	-	-	-
F. Establish program of State Director Roundtables.	-	-	-	-	0.1
G. Conduct laboratory training programs.	0.4	0.5	0.5	0.5	0.5
H. Develop audiovisual cassette training program for HB 133.	-	0.2	0.2	0.2	0.2
<b>TOTAL</b>	1.5	2.0	2.0	1.5	1.0

\*This plan does not reflect resources for development of a national training program.

TABLE 10

Objective 6. Provide the bases for uniformity of design and performance specifications, tolerances, and test methodology for commercial weighing and measuring systems.

OBJECTIVE/TASK	RESOURCES (STAFF YEARS)					
	81	82	83	84	85	86
A. Assist NCWM Specifications and Tolerances Committee and other bodies to develop proposed revisions and amendments to NBS Handbook 44 codes in response to changing technology, such as new electronic systems, vapor recovery, in-motion weighing computer utilization.	0.3	0.3	0.3	0.3	0.3	0.3
B. Develop update of NBS HB 112 "Examination Procedure Outlines for Commercial Weighing and Measuring Devices," last issued June 1973.	0.1	0.1	0.6	0.3	-	-
C. Provide technical advice on the design of testing equipment and the development of testing procedures for weighing and measuring devices.	0.3	0.3	0.3	0.3	0.3	0.3
D. Promote design and develop new field standards and testing equipment.	0.2	0.2	0.3	0.6	1.0	1.0
E. Conduct and/or monitor research on EMI, determine its impact on commercial measurement equipment, and implement technology transfer.	0.2	0.2	0.3	0.3	0.3	0.3
F. Plan, monitor, and conduct studies on weighing and measuring devices and systems.	0.2	0.2	0.2	0.2	1.2	2.0
G. Plan, develop, and provide technical support to State grain moisture metering programs.	0.1	0.3	0.3	0.3	0.2	0.1
H. HB 99.	-	-	0.2	0.2	0.2	-
TOTAL	1.4	1.6	2.5	2.5	3.5	4.0

TABLE 11

Objective 7. Provide traceability to the National Standards in the commercial measurement system by developing, providing where necessary, and maintaining the system of State laboratories including procedures, protocols, measurement assurance, and standards of mass, length, volume, and laboratory apparatus.

OBJECTIVE/TASK	RESOURCES (STAFF YEARS)				
	81	82	83	84	85
A. Complete development of, and implement comprehensive plan for, operation of State laboratories.	0.2	0.2	0.2	0.2	0.2
B. Develop, publish, and maintain State Laboratory Directory.	-	0.1	0.1	0.1	-
C. Provide technical guidance to and monitor State weights and measures laboratory programs (including management of MAP's) to insure integrity of measurement capability.	0.5	0.5	0.5	0.5	0.5
D. Consult and recommend laboratory facilities, organization, instruments, and technical procedures.	0.1	0.1	0.1	0.1	0.1
E. Establish protocols and provide support for operation of Regional Measurement Assurance Programs (RMAPs).	0.1	0.5	0.5	0.7	0.8
F. Develop and disseminate design and performance specifications for various standards of mass, length, and capacity for use as State and local reference and laboratory standards, and the encouragement of manufacturers to make available standards that conform to such specifications.	-	0.2	0.2	0.2	0.2
G. Develop, publish, and maintain State Metrologists Handbooks.	-	0.2	0.2	0.2	0.2
TOTAL	0.9	1.8	1.8	2.0	2.0



TABLE 12

Objective 8. Evaluate new measurement instruments, systems, and field standards to determine their conformance with published standards of design and performance.

OBJECTIVE/TASK	RESOURCES (STAFF YEARS)					
	81	82	83	84	85	86
A. Conduct prototype examinations of commercial weighing and measuring devices, and field and transfer standards.	0.6	1.0	-	-	-	-
B. Assist the NCRM and associated groups to develop test procedures for prototype examination (Draft NBSIR 80-2179).	0.2	0.5	-	-	-	-
C. Promote reciprocity among State type approval jurisdictions.	0.1	0.1	0.6	1.1	1.2	1.2
D. Assist the NCRM in development of a national type approval program.	0.1	0.1	0.1	-	-	-
E. Establish and manage national type approval program.*	-	0.2	5.5	6.7	6.8	6.8
TOTAL	1.0	1.9	6.2	7.8	8.0	8.0

\*Assumes consensus by officials and industry at annual meeting (July 1982) on NTAP concept under development by Task Force.

TABLE 13

Objective 9. Provide the basis for equity-in-trade through support of the development and adoption of model laws and regulations, and conformity in commodity packaging, labeling, distribution, method of sale, and inspection.

OBJECTIVE/TASK	RESOURCES (STAFF YEARS)					
	81	82	83	84	85	86
A. Provide technical support and coordination to the NCWM Committee on Laws and Regulations for addressing new issues and update HB 130 annually.	0.3	0.3	0.3	0.3	0.3	0.3
B. Develop proposed revisions and amendments to the existing models (HB 130) in response to new device technology, packaging practices, legislative changes (includes support to States under PL 89-755 and PL 94-168).	0.1	0.2	0.2	0.2	0.2	0.2
C. Develop automated reference system of State laws and regulations.	-	1.0	1.0	0.5	0.3	0.1
D. Provide advice and guidance to the packaging industry on means and methods for achieving the aims of the Fair Packaging and Labeling Act.	*	0.5	0.5	0.5	0.5	0.5
E. Update and revise HB 133 and develop field handbook based on HB 133 (hip pocket style).	0.3	0.3	0.2	0.1	0.1	0.1
F. Provide technical assistance to State and local administrators and industry on design of national package checking program including in-plant testing, NDT, reciprocity, and metric sizes.	0.1	0.3	0.4	0.4	0.5	0.7
G. Promulgate model laws and regulations and work with States to adopt and update State laws and regulations.	-	0.2	0.2	0.2	0.4	0.4
H. Explore alternatives for establishing national consensus to inspect hygroscopic commodities.	-	-	-	-	0.2	0.2
TOTAL	0.8	2.8	2.8	2.2	2.5	2.5

\*CCPT dropped in FY '82

TABLE 14

Objective 10. Transfer additional calibration capabilities to State metrology laboratories for support of their regulatory programs and industry needs.

OBJECTIVE/TASK	RESOURCES (STAFF YEARS)				
	81	82	83	84	85
A. Develop and implement programs for selected States to achieve measurement competency in additional areas (temperature, pressure, large capacity flow measurement) related to:	0.1	0.2	0.2	0.5	1.5
					2.0
B. Upgrade capabilities of State laboratories in mass, volume, and length.	-	-	-	0.5	0.5
					0.5
TOTAL	0.1	0.2	0.2	1.0	2.0
					2.5

TABLE 15  
OWM Resources by Objective

OBJECTIVE/TASK	RESOURCES (STAFF YEARS)				
	81	82	83	84	85
<u>PROFESSIONAL STAFF</u>					
Objective 1: System Development	1.2	1.5	1.5	1.5	2.0
Objective 2: Information Services	0.9	1.0	1.0	1.0	1.4
Objective 3: NCWM and Regional Association Support	1.5	1.5	1.5	2.0	2.0
Objective 4: International Coordination	0.5	0.5	0.5	1.6	2.0
Objective 5: Training	1.5	2.0	2.0	1.5	1.0
Objective 6: Devices and Equipment	1.4	1.6	2.5	2.5	3.5
Objective 7: Laboratory Standards	0.9	1.8	1.8	2.0	2.0
Objective 8: Prototype Examination	1.0	1.9	6.2	7.8	8.0
Objective 9: Laws, Regulations, and Commodity Transfer	0.8	2.8	2.8	2.2	2.5
Objective 10: Upgrading and Expansion of State Programs	0.1	0.2	0.2	1.0	2.5
Subtotal	9.8	14.8	20.0	23.1	27.4
<u>SUPPORT STAFF</u>					
Office Administration and Support	2.0 <sup>a</sup>	2.0	4.0	4.0	5.0
	11.8	16.8	24.0	27.1	31.9

<sup>a</sup>Includes Karen Barkley, Nancy Chapwick (PT), and Mary Anne Dewese (partial)



### C. Resource Requirements Unconstrained

Table 16 contains a summary, by objective and total for the OWM Program, of professional staff-year requirements over the next five years. The professional staff-year resource requirements together with estimated travel and other object requirements are:

TABLE 16  
Summary of Resource Requirements by FY  
Office of Weights and Measures

	Fiscal Year					
	1981 <sup>a</sup>	1982 <sup>b</sup>	1983 <sup>b,d</sup>	1984 <sup>b</sup>	1985 <sup>b</sup>	1986 <sup>b</sup>
Dollars (Thousands)	758	1063 <sup>e</sup>	1504	1721	1983	2007
Personnel (FTE) <sup>c</sup>	11.8	16.8 <sup>e</sup>	24.0	27.0	31.9	32.4
Slots <sup>f</sup>	10.5	11.5	16.5	19.5	20.5	21

<sup>a</sup> Actual; <sup>b</sup> Estimates; <sup>c</sup> Positions are "fulltime equivalent" including work contracted to NBS Centers and contracted to outside organizations;

<sup>d</sup> Contingent on Type Approval funding; <sup>e</sup> Increase of 5 (metrologist, Taylor-50%, Jones-25%, Schoonover-15%; contracting-3.2 equivalent), \$1063 (762.5+17+34.5+249.1); <sup>f</sup> See paragraph F, "Staff Building" following.

This projection includes resources to address the identified needs with no attempt in the "outyears" to recognize constraints (fiscal and slot). However, FY 82 and FY 83 are viewed as transitional years of buildup to rectify results of ten years of inflation, competing claims on resources, and general attrition in the program. This plan portrays a buildup to a professional staff of 30 (which is really 30 FTE) and an annual budget of \$2,000,000 in terms of 1982 dollars.

### D. Resource Requirements - Constrained

The current level of support of the OWM program is approximately 50 percent of the unconstrained estimated requirements. Consequently, a scenario is presented here which will primarily provide for accomplishment of institutional preservation tasks; that is, no appreciable effort will be applied to upgrading or expanding State programs or involvement in international legal metrology (other than OIML).

The tasks were examined and arranged in priority order. This examination included the full OWM staff, NCWM leaders, plus input

from the Measurement Needs Study. The tasks were ranked in priority order. Many of these tasks have more than one component (status quo, upgrading, expanding, and international).

E. Incremental Funding - FY 82\*

A request has been made for \$250,000 to fund several tasks during FY 82 which are institution building and can be done on contract within NBS or outside. This work can be managed by the current OWM staff, but cannot be funded by the base STRS allocation.

Proposed Tasks

Additional travel ceiling and funding	\$30,000
Technical support (Dr. John Taylor)	54,200
Technical support (Mr. Frank Jones)	27,400
Technical support (Mr. Randy Schoonover)	17,500
Initiate revision of NBS Circular 501	82,000
Video self training materials	38,000
TOTAL	\$249,100

The FY 82 OWM program (constrained resources) is a continuation of the FY 81 program on the assumption that funding will be essentially the same in the two years.

1. Travel

Request additional funding and ceiling \$ 30,000

A major impediment to maximizing the results of the OWM program is the decline in real travel of the staff. The FY 81 travel ceiling was \$38.9K. The FY 80 travel costs were \$43.3K. Although the drop was \$4.4K, the real drop, because of increased air fares and motel costs, is estimated as 25 percent.

2. State Laboratory Institutional Development (Dr. John Taylor)

Labor and overheads	\$ 50,000
Travel	4,200
TOTAL	\$ 54,200

Dr. Taylor supported our laboratory metrology program during FY 81. The results have been excellent. In effect, he has developed a comprehensive measurement assurance plan for State measurement laboratories. I briefed this plan to the State metrologists in St. Louis and recommend that we move ahead to implement that plan. Dr. Taylor would proceed to refine the plan and initiate work toward development of SOP's, model position descriptions, and protocols.

\*This request has been modified — see separate correspondence regarding requests for NML reserve funding and NBS reserve funding.

3. Technical Assistance, Grain Moisture Meters (Frank Jones)

Labor and overheads	\$ 25,000
Travel	<u>2,400</u>
TOTAL	\$ 27,400

The National Task Force on Grain Moisture of the National Conference on Weights and Measures has established a Technical Subcommittee to develop meter performance specifications, tolerances, and testing procedures. The Chairman of the Task Force, Sam Hindsman (Director of the Division of Weights and Measures, Arkansas) has asked for the participation of Frank Jones as technical advisor on the subcommittee. This issue is growing in difficulty because of political visibility and technical complexity (device development).

4. Technical Assistance, Laboratory Metrology (Randy Schoonover)

Labor	\$ 15,000
Travel	<u>2,500</u>
TOTAL	\$ 17,500

In FY 81, OWM funded Randy Schoonover for two specific tasks: development of a mass comparator and teaching a metrologists' seminar. This request is to fund teaching two seminars and continuing of mass comparator development.

5. Revision of NBS Circular 501, "Federal and State Weights and Measures Laws"

Contract to local law school (first year cost)	\$ 82,000
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The circular had been a basic reference and working document supporting the OWM efforts to promote uniformity in weights and measures laws and regulations. The circular was last published in 1951. During the past 30 years, significant changes have occurred. In fact, the development of model regulations adopted by the NCWM postdate the circular. We need such a basic reference. With today's technology, once updated, the circular can be put into the computer. Thereafter, revisions and new acquisitions can readily be introduced and real time access provided. The work should be spread over two years and done under contract by law students working with a data system analyst.

6. Video Self-Training Materials - Handbook 133

Contract, Development of Seven Cassette Training Programs	\$ 38,000
---	-----------

In FY 81, OWM completed work on and published Handbook 133 "Checking the Net Contents of Packaged Goods." This handbook has received accolades and recognition from the leading States and Federal agencies including USDA and FDA. It deals with a subject

that is all pervasive in food processing, packaging, distribution, selling, and enforcement. This seven-cassette training program is designed to provide the basis for self training by our constituencies in the use of the procedures provided in Handbook 133.

#### F. Staff Building

Table 15 illustrates the resource requirements associated with the "unconstrained" program presented. Assuming a combination of staff increases and contracting (within NBS and outside contractors), an increase in full time staff to 20 professionals should be done carefully with high selectivity.

Recommended staff recruitment should seek the following type of professionals in the order listed:

1. Laboratory Metrologist - assist with the State standards and laboratory program.
2. Mechanical Engineer - assist with the support of NCWM technical committees and the prototype examination program.
3. Systems Analyst - assist in development of management systems for OWM, the NCWM, and State programs.
4. Educational Coordinator - work with States and educational institutions for development of "national" training program.
5. Public Administrator - manage programs and coordinate with States, industry, and associations.
6. Legal Administrator - manage program of uniformity, interpretation, and enforcement.
7. Field Engineer - develop field test procedures, training, and technology transfer of new field test equipment.
8. Commodity Advisor - monitor food and commodity processing, packaging, distribution, and retailing technology; work with NCWM committees, State officials, and industry.
9. and 10. Mechanical Engineers (same as #2 above).

#### V. TASK DESCRIPTIONS

Each Task identified with the ten objectives is described in separate papers in terms of:



Title of Task  
Task Leader  
Estimated Resource Requirements (Technical Person Years)  
Statement of Need  
Background  
Plan for Accomplishment  
Schedule

Many tasks are mutually supporting; therefore, summarizing requirements of all Tasks within an Objective will not result in the entries on Tables 5 through 15.

(Item 503 was adopted)

504

#### OIML ACTIVITIES

The Committee received a report from Dave Edgerly, Chief, NBS Office of Domestic and International Measurement Standards (ODIMS) on recent activities of his office in coordinating U.S. participation in OIML standards making activities.

Clearly in the months and years ahead, the USA as a treaty member of OIML, will be called upon with increasing frequency to react to and participate in developing draft international recommendations for a wide variety of legal metrology standards. These OIML standards will (and do) involve not only international recommendations pertaining to devices or "hardware", but will (and are now beginning to) include legal metrology "software" standards as well. "Software" standards in this context mean standards for legal metrology methods and procedures such as sampling plans, statistical methods, package and bulk product or commodity compliance testing, and related weights and measures non-device protocols or examination procedures.

The Committee discussed the role that the NCWM has played in contributing to positions developed for the USA on draft OIML recommendations since the entry of the United States into OIML in 1972. It was observed that by and large the NCWM role to date has been limited to two subsets of the broad OIML spectrum: 1. weighing and measuring devices (through the S & T Committee), and 2. grain moisture measurement (through the Task Force on Grain Moisture Measurement Assurance).

It is evident to the Committee that there is at least one highly significant area of OIML "software" standards making currently underway where NCWM members have a large stake in the outcome and yet have apparently had no effective input opportunity to the U.S. position. This is the area of standards for packaged products quantity of fill compliance testing.

The significance of this area of standards making to the NCWM membership is seen in the chart below, which illustrates jurisdictional coverage of packaged products by various government entities in the U.S. While State and local weights and measures officials generally administer broad acts covering all types of packaged products with single or dual units, Federal agency responsibilities are very narrow and limited in comparison.

GOVERNMENT AGENCIES AND THEIR PACKAGE QUANTITY LABELING AND FILL RESPONSIBILITIES

PRODUCTS UNITS OF MEASURE	CONSUMER PACKAGES						NON-CONSUMER PACKAGES				
	STATE AND LOCAL WEIGHTS AND MEASURES										
	USDA	FDA	FTC	EPA	BATF		USDA	FDA	EPA	BATF	
	MEAT POULTRY	FOOD DRUGS COSMETICS	NON- FOOD	HERBICIDES PESTICIDES RODENTI- CIDES	ALCOHOLIC BEVERAGES TOBACCO	OTHER SPTG GDS AUTO. CHEM HARDWARE etc	MEAT POULTRY	FOOD DRUGS COSMETICS	PESTICIDES	ALCOHOL TOBACCO ALCOHOLIC BEVERAGES	OTHER
CUSTOMARY UNITS ONLY		<div>COVERAGE OF FPLA</div>			TOBACCO MALT BEVERAGE					TOBACCO MALT BEVERAGE	
DUAL UNITS					A					A	
METRIC UNITS ONLY	A	B	A		WINES SPIRITS ONLY		A	A		WINES SPIRITS ONLY	

A. NOT PERMITTED IN APPROPRIATE  
FEDERAL AGENCY REGULATIONS

B. LIMITED TO DRUGS

In this regard, one broad-based OIML Draft Recommendation on sample testing of prepackaged products has been put out (in June 1980) by its Reporting Secretariat (SP 2 sr 5) for comment. In developing a U.S. position on this or any related draft documents, it is imperative that the NBS Office of Domestic & International Measurement Standards be aware of the substantial interest in and current NCWM positions or policies on package control.

To assure that important OIML "software" (non-device) Draft Recommendations and their corresponding U.S. positions receive adequate attention and review or input from the NCWM, the Committee reiterates from Item 503 adopted by the 1981 Conference that "drafting, developing, and formulating NCWM positions (in multi-disciplinary standards areas) for use in . . . international standards development (OIML, etc.)" is an "Extended Liaison (Committee) Role".

(Item 504 was adopted)

505

INTERACTIONS WITH TASK FORCES AND  
STANDING COMMITTEES

#### 505-1 NATIONAL TYPE APPROVAL TASK FORCE

The Task Force on National Type Approval, which is divided into a technical and a policy and administration group, has made substantial progress during the past year. The technical group has developed a Type Approval Criteria and Test Procedures document, which was referred to the Committee on Specifications and Tolerances (S & T Committee) during the 1982 Interim Meetings. Two organizational proposals from the policy and administration group were presented to the Committee on National Measurement Policy and Coordination (P & C Committee). The P & C Committee is expected to recommend an organizational structure for national type approval to the 1982 National Conference.

(Item 505-1 was adopted)

#### 505-2 PACKAGE CONTROL

INTERACTION WITH THE NCWM TASK FORCE ON PACKAGE CONTROL AND WITH THE NCWM SPECIAL STUDY GROUP ON A NATIONAL WEIGHTS AND MEASURES SYSTEM FOR THE U.S.

Liaison Committee Member Simila, who is also a member of both the Task Force and the Special Study Group, continues to meet with and serve as the Liaison Contact with each of these ad hoc NCWM groups. The liaison needs of both groups are beginning to emerge as they get deeper into their tasks. The Task Force on Package Control touches on both Federal/State/local weights and measures interactions and NCWM/international relationships. At some point either or both of these may necessitate specifically directed Liaison Committee efforts. The Special Study Group on a National Weights and Measures System for the U.S. is involved most heavily in terms of interactions with the NCWM/NBS relationship. NCWM liaison needs with Congress have also arisen as a direct result of the Study Group's activities.

(Item 505-2 was adopted)

#### 505-3 GRAIN MOISTURE MEASUREMENT ASSURANCE TASK FORCE

The Grain Moisture Measurement Assurance Task Force (GMMATF) has submitted to the NCWM Committee on Specifications and Tolerances (S & T) a revised draft of a Tentative Code for Grain Moisture Meters. A tentative code has only a trial or experimental status and is not intended to be rigidly enforced. The requirements are designed for observation and study prior to the development and final adoption of a code for Grain Moisture Meters. The S & T Committee has recommended the Tentative Code with some modifications for adoption at the NCWM Conference in July, 1982. If approved by the Conference, the Tentative Code will be included in Handbook 44 with an effective date of January 1, 1983.

The Draft is intended to permit the use of most types of grain moisture meters presently used in commerce. However, the Task Force goes on record strongly advocating automatic devices. The Task Force encourages the incorporation of temperature sensing equipment, grain sample quantity measurement equipment, and direct read-out mechanisms into the meters in order to reduce the potential for misuse or fraud.

(Item 505-3 was adopted)

#### 505-4 COMMITTEE ON LAWS AND REGULATIONS

Interaction during the interim meetings of the Liaison Committee and the Laws and Regulations Committee (L & R Committee) proved to be a productive experience. The resulting improved communications between the committees permitted the Liaison Committee to identify areas for needed liaison in relation to L & R Committee agenda items and promises to minimize duplicative effort. Perhaps the greatest benefit to be derived from this interaction will be the enhanced preparedness of the Liaison Committee to advance matters referred to the Liaison Committee by the L & R Committee. This will be the result as the interacting member of the Liaison Committee orally briefs fellow members in relation to L & R Committee actions.

On behalf of the NCWM, the Committee asked (by a letter dated June 14, 1982) the FDA Commissioner to include in his annual review for Congress of needed changes to the FDC Act, a proposed modification in Section 407 (b) (2) of 21 U.S.C. 347 to permit the sale of margarine in packages with a net weight greater than one pound. The Committee has received no response as of this date as to whether or not such a proposal will be submitted to Congress.

(Item 505-4 was adopted)

#### 505-5 EDUCATION COMMITTEE

The Liaison Committee liaison, Mr. Cavagnaro, has volunteered to assist in furthering plans of the Committee on Education for highlighting weights and measures activities through a National Weights and Measures Week observance, and through a possible additional special program involving the Advertising Council being developed for NCWM by Dick Hurley. Mr. Cavagnaro was invited by Education Committee Chairman Swanson to give a complete report to his committee at the annual meeting on the experience of the U.S. Office of Consumer Affairs in sponsoring National Consumer Week, a project involving business, government, consumer leaders, educators, and the media nationwide.

(Item 505-5 was adopted)



505-6 COMMITTEE ON SPECIFICATIONS AND TOLERANCES

There did not appear to be any Liaison items or problems in the Committee on Specifications and Tolerances agenda or sessions.

(Item 505-6 was adopted)

506 PROMOTION OF USE AND APPLICATION  
OF NBS HANDBOOK 133

NBS Handbook 133 was published in June 1981 and distributed to members of NCWM prior to the Conference in July.

The handbook is intended as a procedural guide with respect to net contents of packaged goods for Federal, State, and local regulatory agencies; however, it will be useful to packagers and manufacturers as well. Packaged goods are defined as a product or commodity put up in any manner in advance of sale suitable for either wholesale or retail sale. The handbook contains information on test equipment, test methods, calculations, and test reporting.

In an effort to promote the use and application of Handbook 133, OWM is working in three basic areas; namely (a) field training seminars (b) development of a field manual, and (c) preparation of audio-visual training cassettes. Three field training seminars (each two full days in duration) have been successfully conducted in the use of H-133 and received many favorable responses from training participants. Additional field training seminars will be made upon request as budgetary and travel allocations permit. In conjunction with the seminars a field training manual has been developed and is being refined with each seminar. Finally the first part of a seven-part videotape cassette series concerned with the use and application of H-133 has been completed and will be distributed to all State and major local jurisdictions and will be available for purchase by industry. It may be freely reproduced.

The Committee feels that additional field training seminars are necessary throughout the country before endorsement of the handbook by the Conference is considered. Publication of a field manual and the remainder of the video-tape series would also be very beneficial. Meanwhile the Committee urges all members of the Conference to promote the use of the handbook by participating in the field training seminars and by seriously considering the use of the handbook with the assistance of the training aids being developed.

(Item 506 was adopted)

507 ADOPTION OF APPLICABLE NBS HANDBOOKS

Two primary objectives of the NCWM as stated in its Organization and Procedures booklet are: "to develop a consensus on model laws and regulations, specifications, and tolerances for weighing and measuring

devices, and on testing, enforcement, and administrative procedures", and "to encourage and promote uniformity of requirements and methods among jurisdictions."

The publication by the National Bureau of Standards of a series of NBS Handbooks dealing with weights and measures subjects over the years has been a significant contributing factor toward achieving the objectives stated above. At the present time the fifteen NBS Handbooks listed in Table I below are sourcebooks found in most State (and many local) weights and measures jurisdictions. While some of these Handbooks are more current and more extensively adopted or utilized by jurisdictions than others, all on the list are employed as references or guidelines to some extent in various jurisdictions.

Four of the Handbooks in the Table have to date been officially adopted by the NCWM. These are NBS Handbooks 44, 67, 82, and 130. Handbook 44 is an ongoing product of the NCWM Specifications and Tolerances Committee and is annually revised, acted upon by the NCWM membership, and republished by NBS. Handbook 67 was adopted by resolution of the 44th NCWM in June 1959. Handbook 82 was officially recommended by resolution of the 46th NCWM (1961) following technical and editorial review of its content by the six-person Weights and Measures Advisory Committee to the Director of the National Bureau of Standards. Handbook 130, while not technically adopted as a single handbook, consists of two model laws and five model regulations all of which have been separately adopted by the NCWM. The seven documents in Handbook 130 are ongoing products of the NCWM Laws and Regulations Committee and each may individually be revised annually depending on need and acted upon by the NCWM membership. The entire H-130 compilation is republished annually.

The Committee on Liaison has discussed the status of the other Handbooks listed in the compilation in light of the NCWM objectives stated at the beginning of this agenda item. To the extent that any one of the Handbooks is a very widely accepted reference work by weights and measures officials and that no major controversy presently exists concerning its use, the Committee feels that such a Handbook has become a de facto consensus standard for State and local jurisdictions. The Committee feels further that Handbooks that are in the de facto consensus standard category and are current (published within the past ten years) merit recognition of their widespread acceptance in a manner similar to that accorded to Handbooks 44, 67, 82, and 130. Handbooks that, on the other hand, are either not in widespread use, are the subject of some present controversy, or are not current (more than ten years since last revision and publication) do not merit, in the Committee's thinking, consideration for conference endorsement.

Based upon the above factors, the Committee recommends the following Conference action with respect to the series of NBS Handbooks:

- 507-1 NBS Handbook 105-1, titled Specifications, Tolerances for Reference Standards and Field Standard Weights and Measures 1. Specifications and Tolerances for Field Standard Weights (NBS Class F), issued July, 1972, (with 1975 tolerance changes) is hereby adopted as an NCWM consensus standard document.
- 507-2 NBS Handbook 105-2, titled Specifications and Tolerances for Reference Standard and Field Standard Weights and Measures 2. Specifications and Tolerances for Field Standard Measuring Flasks, issued January, 1971, is hereby adopted as an NCWM consensus standard document.
- 507-3 NBS Handbook 105-3, titled Specifications and Tolerances for Reference Standard and Field Standard Weights and Measures 3. Specifications and Tolerances for Graduated Neck Type Volumetric Field Standards issued March, 1979, is hereby adopted as an NCWM consensus standard document.
- 507-4 NBS Handbook 117, titled Examination of Vapor-Measuring Devices for Liquefied Petroleum Gas, issued December, 1975, is hereby adopted as an NCWM consensus standard document.
- 507-5 NBS Handbook 137, titled Examination of Distance Measuring Devices, issued December, 1980, is hereby adopted as an NCWM consensus standard document.
- 507-6 NBS Handbooks 45, 82, 94, 98, 99, 108, and 112 are for the most part widely accepted reference works and no major controversy presently exists with respect to their contents. However, because of the extended time since their respective dates of last publication (17 to 31 years, except H-112 which is 9 years), these handbooks need to be updated and republished by NBS before the NCWM considers adopting them as consensus standard documents. Weights and measures case history decisions are often helpful in determining a course of action. The committee feels NBS Circular No. 540, "Weights and Measures Case Reference Book," published in 1950, should be updated and made available to weights and measures officials in the NBS Handbook Series. The National Bureau of Standards is hereby urged to give these handbooks priority consideration for revision and republication.
- 507-7 NBS Handbook 133 covering the subject of net content checking of prepackaged goods is in an area of present controversy. Further training, field experience, and possibly changes in legal requirements are deemed advisable before the NCWM should consider taking any specific action in this area.



TABLE I  
NBS HANDBOOKS WITH REFERENCE VALUE  
TO STATE AND LOCAL WEIGHTS AND MEASURES OFFICIALS

NBS HAND- BOOK	HANDBOOK DESCRIPTION	DATE ISSUED	NCWM ADOPTED	PUBLICATION STATUS	1982 ACTION
H-44	Device Specifications, Tolerances, etc.	9/81	YES	Annual NCWM Action; NBS Republication	Ongoing
H-45	Testing of Measuring Equipment	5/51	NO	In Part Superseded By H-112; H-137	Recommend Updating
H-67	Checking Prepackaged Commodities	3/59	YES	Adopted 6/59. Out of Print, H-133 is Prospective Successor	None Proposed
H-82	Weights and Measures Administration	6/62	YES	Recommended by 46th (1961) NCWM	Recommend Updating
H-94	The Examination of Weighing Equipment	3/65	NO	In Part Superseded By H-112	Recommend Updating
H-98	Examination of Farm Milk Tanks	5/64	NO	Original Publication Never Republished	Recommend Updating
H-99	Examination of LP-Gas Liquid Measuring Devices	4/65	NO	Original Publication Never Republished	Recommend Updating
H-105-1	Specifications for Field Standard Weights (Class F)	7/72*	NO	Revision of Original (4/69) Publication	Adoption Proposed
H-105-2	Specifications for Field Standard Measuring Flasks	1/71	NO	Original Publication	Adoption Proposed
H-105-3	Specs for Graduated Neck Type Volumetric Field Standards	3/79	NO	Original Publication	Adoption Proposed
H-108	Weights and Measures Handbook	5/71	NO	Original Publication	Recommend Updating
H-112	Device Examination Procedure Outlines	6/73	NO	Code References Based on H-44 1972 Edition	Recommend Updating
H-117	Examination of LP-Gas Vapor Measuring Devices	12/75	NO	Original Publication	Adoption Proposed
H-130	Model State Weights & Measures Laws and Regulations	9/81	YES	Annual NCWM Action; NBS Republication	Ongoing
H-133	Checking Net Contents of Packaged Goods	6/81	NO	Is Prospective Successor to H-67	None Proposed
H-137	Examination of Distance Measuring Devices	12/80	NO	Supersedes in Part H-45	Adoption Proposed

\*with 1975 tolerance change

(Item 507 was adopted)



METRIC-ONLY LABELING

In correspondence directed to the NCWM through Mr. Tholen, the American National Metric Council (ANMC) has indicated its concern that a potential barrier to metric transition exists because "metric only" labeling of consumer and possible nonconsumer products would not be permitted under current interpretations of the FPLA and other relevant law. The Committee briefly reviewed this matter and concluded that a theoretical impediment to metric transition did exist but specific examples were needed to substantiate a formal claim for relief to regulators and/or to the Congress. The ANMC was contacted by letter, encouraged to develop evidence of the problem, and assured of the NCWM's willingness to cooperate in any way possible.

(Item 508 was adopted)

UPDATE OF LIAISON SCOPE IN NCWM  
ORGANIZATION AND PROCEDURE

The Committee feels that the scope of its activities as provided in the NCWM Organization and Procedure is obsolete and should be replaced by the following language based on item 503 adopted by the 66th NCWM, 1981:

Committee on Liaison - The Committee on Liaison annually presents a report for Conference action. Its mission is divided into three categories of activities as follows:

I. Traditional (with Federal agencies) Liaison:

Intergovernmental (NCWM with NBS/USDA/FDA/FTC/DOD/ Postal Service/etc.) contacts and relations on behalf of the Conference. This role involves explaining, advocating, and coordinating Conference positions, recommendations, and needs before Federal Government agencies and promoting uniformity among those agencies and with NCWM.

II. Extended (with other agencies) Liaison:

Performing, in addition to the above functions,

- 1) interjurisdictional (between weights and measures jurisdictions) liaison;
- 2) liaison with regional weights and measures associations;
- 3) drafting, developing, and formulating NCWM positions (in multi-disciplinary standards areas) for use in the NCWM's participation in international standards development (OIML, etc.).
- 4) interorganizational liaison with groups such as NASDA, AFDO, ANMC, ASTM, ANSI, etc.

### III. Internal (NCWM in-house) Liaison:

- 1) Ex officio participation of Liaison Committee members with other NCWM Standing Committees (by assignment) to facilitate liaison needs of those groups.
- 2) Coordinating the activity of, and the reporting to the Conference by, independent NCWM task forces and special study groups appointed by the Conference Chairman.

(Item 509 was adopted)

K. J. Simila, Oregon, Chairman  
 C. R. Cavagnaro, U.S. Office of Consumer Affairs  
 N. D. Smith, North Carolina  
 E. J. Stephens, Utah  
 M. S. Thompson, Chadwell, Kayser, Ruggles, McGee, and Hastings, Ltd.  
 S. Hasko, Technical Advisor, NBS  
 A. D. Tholen, Executive Secretary, NCWM

### COMMITTEE ON LIAISON

(On motion of the committee chairman, the report of the Committee on Liaison voting key items 500 through 509 was adopted in its entirety as amended by the Conference. The results of the voting in the House of State Representatives and the House of Delegates under the Conference voting system are totalized in the table that follows. The Conference also authorized the Executive Secretary to make any appropriate editorial changes in the language adopted by the Conference.)

### VOTING RESULTS--Committee on Liaison

Voting Key	House of State Representatives		House of Delegates	
	Yes	No	Yes	No
501				
502-1				
502-2				
502-3				
503				
504				
505-1	46	0	57	0
505-2				
505-3				
505-4				
505-5				
505-6				
506				
507				
508	47	0	57	0
509				

FINAL REPORT  
OF THE  
EXECUTIVE COMMITTEE

Presented by EDWARD C. HEFFRON, Chief  
Food and Dairy Division  
Michigan Department of Agriculture  
Lansing, Michigan

VOTING KEY

600

INTRODUCTION

The Executive Committee submits its final report for consideration by the 67th National Conference on Weights and Measures.

The following items were initially referred to the P & C Committee and the appropriate standing committees at the interim meeting in January and were subsequently referred to the Executive Committee for its consideration.

Voting items are:

- 601 - Retention of the National Measurement Policy and Coordination Committee pending further study of alternatives.
- 602 - Authorizing the Executive Secretary to plan for future meetings

Information items are:

- 603 - Membership Program
- 604 - Financial Management
- 605 - Industry Representation
- 606 - Malcolm Jensen Memorial Award
- 607 - Theme and Program - 67th Annual Meeting

UNFINISHED REORGANIZATION ACTIONS

The Conference leadership continued to explore ways and means to increase efficiency and effectiveness of the NCWM as a major national body promoting uniformity and equity in Commerce.

Of a wide range of ideas presented to the 66th Annual Meeting in St. Louis, one reorganizational proposal was considered by the attendees. This was a two step proposal:

1. Eliminate the National Measurement and Policy Coordination Committee (NMPCC), and
2. Restructure of the Executive Committee expanding its role to include residual functions of the NMPCC.

#### Conference Actions

The NCWM Active Membership voted in favor of eliminating the NMPCC (Item 601), but voted against the proposed expanded Executive Committee (Item 602).

#### Consequences of Actions

Unless action is taken at the 67th Annual Meeting (July 1982), the National Measurement and Policy Coordination Committee will cease to exist and its functions as specified in the "NCWM Procedures and Policy" statement will have to be reassigned or eliminated. The objective of the NMPCC is to serve as a policymaking and coordinating body in matters of national and international significance which may include such areas as metrication, International Organization of Legal Metrology (OIML), relationships with standards bodies (ASTM, ANSI, ISO, NCSL), and other similar functions.

#### Executive Committee

As a result of the defeat of Item 602, the Executive Committee is unchanged. Based on floor discussion of this item at the 66th Annual Meeting, it appears that the membership:

1. was prepared to eliminate the NMPCC and transfer its functions to a restructured Executive Committee but,
2. did not agree with the proposed composition of the new Executive Committee which was:

Conference Chairman

First Vice-Chairman

Second Vice-Chairman

Immediate Past Chairman

Four Chairmen of the Standing Committees

Four Presidents of the Regional State Weights and Measures Associations

Subsequent informal exploration of the opinions and desires of the NCWM membership centered on questions regarding the proposed makeup of the Executive Committee.



### Possible Flaws

The proposal (Item 602) appeared to set up a succession to Conference Chairman which would result in the membership electing a Second Vice-Chairman each year as contrasted with the current practice of electing the Chairman directly.

The proposal (Item 602), by retaining the four chairmen of the Standing Committees as members, did not resolve the difficulties for these members to participate in NMPCC (or, in the proposed new Executive Committee) sessions during the Interim Committee Meetings.

The proposal (Item 602) did not address the possible questions regarding the membership of the four Regional Presidents, given the fact that two Regional Associations meet prior to and two meet following the NCWM Annual Meeting.

The proposal (Item 602) does not provide for the degree of continuity originally expected; eight members would change annually (the four Standing Committee Chairmen and the four Regional Presidents).

### Conclusion

The NMPCC, meeting in January, 1982, discussed the above items. Abolition of the existing NMPCC and establishment of a stronger Executive Committee is still believed to be in the best interest of a growing NCWM.

The NMPCC concludes, however, that the options for such a reorganization have not been adequately explored nor described for understanding by the NCWM membership, let alone asking for adoption of such a major organizational change.

The Executive Committee recommends reversal of the vote of the 66th Annual Meeting which eliminated the NMPCC. Such a reversal will retain the NMPCC and provide time to study the issue fully and to submit to the membership a well designed and described proposal.

601

#### RETAIN NATIONAL MEASUREMENT POLICY AND COORDINATION COMMITTEE

The Executive Committee recommends that the vote for elimination of the National Measurement Policy and Coordination Committee be rescinded and that the NMPCC be retained, pending further study of alternatives.
--

(Item 601 was adopted)

FUTURE CONFERENCE SITES

Selection of meeting sites for future NCWM annual meetings was discussed at length. Related questions discussed included:

Are costs of holding meetings in downtown locations of major cities becoming prohibitive?

Would meetings in smaller cities or suburban areas be supported?

It was agreed that the Executive Secretary would solicit ideas and comments from the membership. In the meantime, plans will continue toward holding future meetings as follows if approved:

<u>Year</u>	<u>Meeting</u>	<u>Location</u>	<u>Hotel</u>
1983	68th	Sacramento, CA	Thunderbird
1984	69th	Boston, MA	Open
1985	70th	Washington, DC	Open

The Committee has received proposals to hold the 1986 Conference in Columbus, Ohio, Little Rock, Arkansas, and Detroit, Michigan.

Additionally, the Executive Secretary has received a proposal from Denver, Colorado to hold the Conference in that city in 1986.

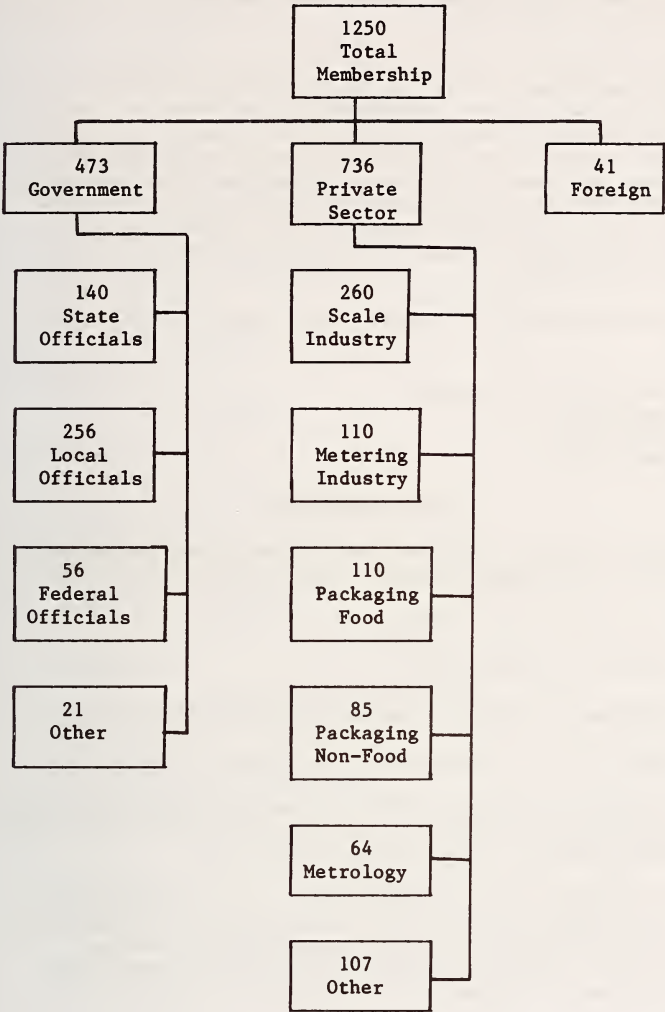
Mr. Thomas Stabler advised the Committee, during the General Session, that both the Governor of Ohio and the Mayor of Columbus have sent letters to the Conference, during the Executive Session, to hold the Annual Meeting of the National Conference in Columbus, Ohio in 1984, 1985, or 1986.

The Executive Committee recommends approval for the Executive Secretary to proceed with plans for the 68th, 69th, and 70th Annual meetings as reported.
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(Item 602 was adopted)

MEMBERSHIP PROGRAM

Current membership of the NCWM is approximately 1250. The composition of the membership is as follows:



Income from membership dues exceeds \$41,000 (see next section of Committee Report, "Financial Management").

The Committee discussed the desirability of extending the membership to include more local officials (county and municipal), and decided to establish an Ad Hoc Committee to:

"explore a possible means for the Conference to attract weights and measures officials of local jurisdictions to become active members." This does not infer that the new members should necessarily consider participation at annual meetings although such participation would be encouraged. The basic assignment of the Ad Hoc Committee is to "consider and identify benefits of membership, some of which the conference does not presently provide" that would attract a broader membership, especially among local weights and measures officials.

The Chairman appointed the following Active Members to the Ad Hoc Committee:

Mr. Wes Mossberg, Chairman  
Mr. Tom Geiler  
Mr. Ezio Delfino  
Mr. Sam Valtri

604

#### FINANCIAL MANAGEMENT

The Executive Secretary described a new financial management program for the NCWM. This program provides several benefits including:

1. establishment of a budget,
2. control of expenditures,
3. investment of funds to maximize income, and
4. provision of a clearer basis for accountability and audit.

As part of this new system, Mr. Allan Nelson, Treasurer, has invested funds in Certificates of Deposit which will yield additional income of approximately \$2000 to the NCWM this fiscal year.

The current annual budget (following page) is for the period from July 1, 1981 through June 30, 1982, and is identified as Fiscal Year 66 (to identify the fiscal year with the 66th Annual meeting). Projected receipts total \$61,750 and budgeted expenditures total \$55,785. The budget is based on the following accounts.



## LIST OF ACCOUNTS

### RECEIPTS

- 1.1 - Registration Fees - Annual Meeting
- 1.2 - Membership Fees
- 1.3 - Publications
- 1.4 - Interest
- 1.9 - Miscellaneous

### EXPENSES

- 2.0 - Annual Meeting
  - 2.1 - Hotel, Food Service
  - 2.2 - Equipment, AV and Office
  - 2.3 - Personnel
  - 2.4 - Printing, Publication
  - 2.5 - Conference Officers
  - 2.6 - Speakers
  - 2.7 - Travel
  - 2.9 - Miscellaneous
- 3.0 - Interim Meetings
  - 3.1 - 3.9 - as above
- 4.0 - Other Meetings
  - 4.1 - 4.9 - as above
- 5.0 - Special Programs
  - 5.1 - Program Evaluation
- 6.0 - Chairman's Activities
  - 6.1 - 6.9 - as above
- 7.0 - Membership
- 8.0 - Printing and Publications
  - 8.1 - HB 44
  - 8.2 - HB 130
  - 8.3 - Conference Proceedings
  - 8.4 - HB 133
  - 8.9 - Miscellaneous
- 9.0 - Administration
  - 9.1 - Equipment
  - 9.2 - Stationery, Mailing
  - 9.3 - Treasurer Expenses
  - 9.4 - Executive Secretary Expenses
  - 9.5 - Services, Contracts
  - 9.6 - Supplies
  - 9.9 - Miscellaneous

FY 66 BUDGET  
RECEIPTS AND REIMBURSABLES

<u>Account</u>	<u>Budget</u>
1.1 - Registration Fees	\$14,700.00
1.2 - Membership Fees	43,750.00
1.3 - Publications	500.00
1.4 - Interest	2,500.00
1.9 - Miscellaneous	300.00
	<hr/>
	\$61,750.00

DISBURSEMENTS

<u>Account</u>	<u>Budget</u>
2.0 Annual Meeting	\$ 8,600.00
3.0 Interim Meetings (Jan. 1982)	16,000.00
4.0 Other Meetings	3,000.00
5.0 State & Local Program Evaluation	8,000.00
6.0 Chairman's Expenses	2,000.00
7.0 Membership Program	3,650.00
8.0 Printing & Publications	8,200.00
9.0 Administration	6,335.00
	<hr/>
	\$55,785.00

Assets as of Mar. 15, 1982	<u>\$25,648.51</u>
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Southington Bank and Trust Co.	\$ 1,136.52
Treasury Bill	24,285.90
Union Trust Co.	226.09
	<hr/>
	\$25,648.51

605

INDUSTRY REPRESENTATION

In a letter to the Conference Chairman, the Associate Membership requested consideration of a proposal to add one non-voting member from the Associate Membership to each Standing Committee.

The request was discussed with certain advantages highlighted:

- o facilitation of communication
- o broaden the source of technical advice and assistance to the Committees,

- o provide a better understanding of the issues by the associate members
- o increase the recognition of associate membership.

The P & C Committee members voted against the proposal. They concluded that NCWM deliberations were conducted in an open forum and anyone could attend and participate. Further, it was the consensus of the P & C Committee members that NCWM leadership has greatly broadened the involvement of the associate membership in the past two years. The involvement of the industry representatives in the various task forces and sub-committees has resulted in the attainment of many of the advantages sought by the associate membership. The P & C Committee went on record also in complimenting the associate membership on the effectiveness and great value of their sizeable participation in the business of the NCWM especially in the uniformity studies, and the type approval and the grain moisture task force work.

606

#### MALCOLM JENSEN MEMORIAL AWARD

Don Mackay, who worked in the Office of Weights and Measures from 1961 to 1965, suggested that the significant contributions of Malcolm W. Jensen to the weights and measures field might appropriately be recognized through the establishment of a new NBS Award. He indicated that this idea had been put forth by another co-worker of Mac's and was well supported by others with whom he had talked since Mac's death on January 20th.

Mr. Mackay explained that he would propose that the award be open to Federal, State, or local weights and measures officials nominated either by the Executive Committee of the NCWM or by an NBS Laboratory Director. He requested consideration of support by the NCWM Committee members for the establishment of such an NBS Award.

607

#### THEME AND PROGRAM - 67th ANNUAL MEETING

Chairman Heffron has selected as this year's Conference theme "Crossroads." The theme recognizes that the weights and measures system is at a crossroad at the national, State, and local levels; it is at a crossroad technically, administratively, and legally.

This year's Annual Meeting will focus on several programs that are at a crossroad. We, as a Conference, will be expected to provide guidance and leadership in planning our collective future regarding programs for:

- o National Type Approval
- o National Training
- o National Certification

- o State and local program review
- o Involvement of Handbooks 44 and 130
- o Prepackaged commodity control

The program format for the 67th Annual Meeting will be similar to that instituted at the 66th Annual Meeting in St. Louis. We will minimize plenary sessions and scheduling of speakers. Time will be provided for special committee and task force meetings and for Regional Association caucusing. The week will be truly a working and education meeting organized to make many of the "crossroad" decisions required of us.

Edward C. Beffron, Michigan, Conference Chairman

J. W. Abbott, Missouri

J. C. Blackwood, Dallas, Texas

G. S. Franks, Cumberland City, New Jersey

F. M. Fullinwider, Arizona

T. E. Kirby, Georgia

G. N. Magnuson, Washington

B. R. Niebergall, North Dakota

J. Rothleder, California

R. J. Silcock, Terre Haute, Indiana

C. T. Smith, South Carolina

A. D. Tholen, Executive Secretary, NCWM

#### EXECUTIVE COMMITTEE

(On motion of the committee chairman, the report of the Executive Committee voting key items 600 through 607 was adopted in its entirety by the Conference. The results of the voting in the House of State Representatives and the House of Delegates under the Conference voting system are totalized in the table that follows. The Conference also authorized the Executive Secretary to make any appropriate editorial changes in the language adopted by the Conference.)

#### VOTING RESULTS - Executive Committee

Voting Key	House of State Representatives		House of Delegates	
	Yes	No	Yes	No
601-602	42	0	27	0



## REPORT OF THE RESOLUTIONS COMMITTEE

Presented by PHILIP A. STAGG, Chairman  
Director, Louisiana Weights and Measures  
Baton Rouge, Louisiana

VOTING KEY  
700

### INTRODUCTION

The Resolutions Committee wishes to express the appreciation of the 67th National Conference on Weights and Measures to those who contributed their time and talents towards the arrangements for, the conduct of, and the success of this National Conference.

701

### SPECIAL THANKS

Special votes of thanks go to:

- 1) Dr. Ernest Ambler, Director of the National Bureau of Standards, for his encouraging address.
- 2) Governor George Busbee for his timely remarks.
- 3) Mr. Thomas Irvin, Commissioner of the Georgia Department of Agriculture, and his staff for hosting and assisting in the conduct of this Conference and providing their hospitality through the Stone Mountain outing and special activities for the guest events.
- 4) Mr. Donald Abelson, Director, Technical Trade Barriers, Office of the U.S. Trade Representative, Executive Office of the President, for his informative and challenging remarks.
- 5) All speakers of the Conference for sharing their expertise and contributing to the program.
- 6) Officers and appointed officials of the 67th National Conference on Weights and Measures for their assistance and service toward progress on national issues.
- 7) Committee members for their time and efforts throughout the past year preparing and presenting their reports.
- 8) Governing officials of the State and local jurisdictions for their advice, interest, and support in weights and measures administration in the United States.
- 9) Representatives of business and industry for their cooperation, assistance in committee and conference work, and co-hosting the Stone Mountain outing.

- 10) Consumer representatives, members of the public, and media who have shown their interest and support for the National Conference on Weights and Measures.
- 11) Staff of the Marriott Hotel for their assistance and courtesies which contributed to the enjoyment and comfort of the delegates in their fine facilities.
- 12) National Bureau of Standards and the Office of Weights and Measures for their outstanding assistance in planning and conducting the work and program of the National Conference on Weights and Measures.

702

POSITION ON METRICATION

WHEREAS, The U.S. Metric Board faces termination in September 1982 and

WHEREAS, The National Conference on Weights and Measures has historically supported and continues to support metrication within the United States,

THEREFORE BE IT RESOLVED THAT, The National Conference on Weights and Measures supports the assignment of the essential functions of the United States Metric Board, contingent with provisions of funding and staffing, to the Department of Commerce.

Respectfully Submitted:

P. A. Stagg, Louisiana, Chairman  
J. W. Abbott, Missouri  
R. J. Anderson, New York  
K. S. Butcher, West Virginia  
E. Gadberry, Anderson, IN.  
J. A. Huey, Yuba County, CA.  
O. D. Millinax, Georgia  
A. D. Tholen, Executive Secretary

RESOLUTIONS COMMITTEE

(On motion of the committee chairman, the report of the Resolutions Committee, voting key items 700 through 702, was adopted in its entirety by the Conference).

## REPORT OF THE NOMINATIONS COMMITTEE

Presented by KENDRICK J. SIMILA, Chairman  
Administrator, Weights and Measures Division,  
State of Oregon, Salem, Oregon

### VOTING KEY

800

### INTRODUCTION

The Nominations Committee met during the Conference for the purpose of selecting a slate of nominees for all elective offices and for the ten elective memberships of the Executive Committee. In the selection of nominees from the active membership, consideration was given to the professional experience and qualifications of individuals; attendance records, geographical distribution, and Conference participation; and to other factors deemed by the committee to be important.

801

### NOMINATIONS

The Nominations Committee submits the following names in nomination for office to serve during the ensuing year and at the 67th National Conference on Weights and Measures:

#### Nominations

##### Chairman:

Charles H. Greene, New Mexico

##### Vice Chairmen:

John T. Bennett, Connecticut  
James C. Blackwood, Dallas, TX  
Patricia M. Fullinwider, Arizona  
Frank Nagele, Michigan

##### Treasurer:

Allan M. Nelson, Connecticut

##### Chaplain:

Francis W. Daniels, Wayne County, IN

##### Executive Committee:

1. John W. Alloway, Nebraska
2. Barbara K. Boddicker, South Dakota

3. Kenneth S. Butcher, West Virginia
4. John M. Chohamin, Middlesex County, NJ
5. Ezio Delfino, California
6. Arnold Heilman, Allentown, PA
7. Leo Letey, Colorado
8. Donald L. Lynch, Kansas City, KS
9. Patrick E. Nichols, Alameda County, CA
10. John V. Pugh, South Carolina

(There being no further nominations from the floor, the Chairman declared nominations closed and requested the Executive Secretary to cast a unanimous ballot for all nominees.)

K. J. Simila, Oregon, Chairman  
S. D. Andrews, Florida  
E. F. Delfino, California  
J. F. Lyles, Virginia  
S. F. Hindsman, Arkansas  
J. L. O'Neill, Kansas  
R. L. Thompson, Maryland

#### NOMINATIONS COMMITTEE

(On motion of the committee chairman, the report of the Nominations Committee, voting key item 801, was adopted in its entirety by the Conference).



# REPORT OF THE AUDITING COMMITTEE

Presented by JAMES H. SPENCER, Director  
Mississippi Department of Agriculture and Commerce  
Jackson, Mississippi

## VOTING KEY

900

The Auditing Committee met on Wednesday morning, July 15, for the purpose of reviewing the financial records of the Conference Treasurer, Mr. Allan M. Nelson. The Committee finds these records to be in accordance with Conference procedure and correct.

J. H. Spencer, Mississippi, Chairman  
B. R. Niebergall, North Dakota  
J. Silvestro, Gloucester County, NJ

## AUDITING COMMITTEE

(On motion of the committee chairman, the report of the Auditing Committee, voting key item 900, was adopted by the Conference.)

REPORT OF THE CONFERENCE TREASURER

Presented by ALLAN M. NELSON, Metrologist, Weights and  
Measures Division, Department of Consumer  
Protection, State of Connecticut

VOTING KEY

1000

INTRODUCTION

It is my pleasure to report to you today on  
the financial status of the Conference treasury as  
follows:

Cash on Hand - June 30, 1981 \$ 9,344.58

DEPOSITORIES

Southington Bank & Trust Co. - Southington, CT	\$ 9,183.33
Union Trust Co. - Gaithersburg, Maryland	<u>151.25</u>
	<u>\$ 9,334.58</u>

RECEIPTS

Account Number	1.1 Registration-66th Conference	\$14,770.00
"	" 1.1 Registration-67th Conference	\$ 3,200.00
"	" 1.2 Membership-F.Y. 66, 1981-'82	\$43,460.00
"	" 1.2 Membership-F.Y. 67, 1982-'83	\$27,790.00
"	" 1.3 Publications	\$ 779.75
"	" 1.4 Interest	\$ 3,024.47
"	" 1.9 Miscellaneous	<u>\$ 755.73</u>
Total Receipts		<u>\$ 93,779.95</u>
Total Cash Balance & Receipts		<u>\$103,114.53</u>

# DISBURSEMENTS

Account Number	2.0 Annual Meeting	\$ 9,898.18
"	" 3.0 Interim Meeting	\$15,512.98
"	" 4.0 Other Meetings	\$ 3,078.00
"	" 5.0 Special Programs-(Program Evaluation)	\$ 9,427.07
"	" 6.0 Chairman's Expenses	\$ 2,977.31
"	" 7.0 Memberships	\$ 3,626.11
"	" 8.0 Printing & Publications	\$ 6,326.94
"	" 9.0 Administration	<u>\$ 6,382.23</u>
Total Disbursements		<u>\$ 57,228.82</u>
Cash on Hand - June 30, 1981-Connecticut Bank & Trust Co.		
	Southington, CT	\$ 6,805.41
	-Union Trust Co.	\$ 314.24
	Gaithersburg, MD	
\$40,000.00	91 Day Treasury Bills-Connecticut Bank & Trust Co.	<u>\$38,766.06</u>
	Southington, CT	
Total Assets		<u>\$ 45,885.71</u>
Total Disbursements & Assets		<u><u>\$103,114.53</u></u>

(signed) Allan M. Nelson, Treasurer

(On motion of Mr. Nelson, the report of the Conference Treasurer, voting key item 1000, was adopted by the Conference).

REGISTRATION LIST  
67TH NATIONAL CONFERENCE ON WEIGHTS AND  
MEASURES

July 12-16, 1982

Atlanta Downtown Marriott Hotel, Atlanta, Georgia

ALABAMA

STATE ----- JOHN B. RABB, Supervisor, Weights and Measures Laboratory,  
State of Alabama, P. O. Box 3336, 1445 Federal Dr.,  
Montgomery, Alabama 36193 (Tel. (205) 832-6767)

JAMES H. SELLERS, Chief Inspector, Weights and Measures,  
Department of Agriculture, P. O. Box 3336, Montgomery,  
Alabama 36193 (Tel. (205) 832-6767)

DON E. STAGG, Director, Weights and Measures Division,  
Department of Agriculture, P. O. Box 3336, Montgomery,  
Alabama 36193 (Tel. (205) 832-6766)

ALASKA

STATE ----- JOSEPH L. SWANSON, Chief, Weights and Measures, State  
of Alaska, P. O. Box 10-1686, Anchorage, Alaska 99511  
(Tel. (907) 345-3886)

ARIZONA

STATE ----- PATRICIA M. FULLINWIDER, Chief, Weights and Measures  
Division, State of Arizona, DoA, 3039 West Indian  
School, Phoenix, Arizona 85017 (Tel. (602) 255-5211)

ARKANSAS

STATE ----- SAM F. HINDSMAN, Director, Arkansas Weights and Mea-  
sures, 4608 West 61st Street, Little Rock, Arkansas  
72209 (Tel. (501) 371-1759)

CALIFORNIA

STATE ----- EZIO F. DELFINO, Assistant Director, Division of  
Measurement Standards, State of California, 8500  
Fruitridge Road, Sacramento, California 95826  
(Tel. (916) 366-5119)

DARRELL GUENSLER, Assistant Chief, Division of Measure-  
ment Standards, State of California, 8500 Fruitridge  
Road, Sacramento, California 95826 (Tel. (916)  
366-5119)

JOSEPH ROTHLEDER, Metrologist, Division of Measurement  
Standards, 8500 Fruitridge Road, Sacramento, Cali-  
fornia 95826 (Tel. (916) 366-5119)



# COUNTY

Alameda ----- PATRICK E. NICHOLS, Director of Weights and Measures,  
Alameda County, 333 - 5th Street, Oakland, Cali-  
fornia 94607 (Tel. (415) 874-6736)

Glenn ----- ED ROMANO, Sealer, Department of Weights and Measures,  
P. O. Box 351, Willows, California 95988 (Tel.  
(916) 934-4651)

Los Angeles ----- W. R. MOSSBERG, Director, Los Angeles County Depart-  
ment of Weights and Measures, 11012 Garfield Avenue,  
South Gate, California 90280 (Tel. (213) 922-8921)

Riverside ----- JOSEPH W. JONES, Director, Weights and Measures, 2950  
Washington, Riverside, California 92504 (Tel. (714)  
787-2620)

Yuba ----- JACK A. HUEY, Director of Weights and Measures,  
Yuba County, 921 West 14th Street, Marysville,  
California 95901 (Tel. (916) 674-6377)

## COLORADO

STATE ----- LEO LETEY, Chief, Weights and Measures Section,  
Department of Agriculture, 3125 Wyandot, Denver.  
Colorado 80003 (Tel. (303) 866-2845)

DAVID R. WALLACE, Agricultural Field Representative,  
Colorado Department of Agriculture, 3125 Wyandot St.,  
Denver, Colorado 80211 (Tel. (303) 866-2845)

## CONNECTICUT

STATE ----- JOHN T. BENNETT, Chief, Weights and Measures, State  
of Connecticut, Department of Consumer Protection,  
State Office Building, Room G-17, Hartford, Connec-  
ticut 06115 (Tel. (203) 566-4778 or 566-5230)

ALLAN M. NELSON, Metrologist, Department of Consumer  
Protection, Weights and Measures Division, State  
Office Building, Room G-17, 165 Capitol Avenue,  
Hartford, Connecticut 06115 (Tel. (203) 566-5230)

# CITY

Middletown ----- GUY J. TOMMASI, Sealer of Weights and Measures, City  
of Middletown, City Hall, Middletown, Connecticut  
06457 (Tel. (203) 347-4671 Ext. 215)

New Haven ----- HELENE P. CAUSGROVE, Sealter of Weights & Measures, City  
of New Haven, 18 Davis St., New Haven, CT 06515 (Tel.  
(203) 387-4913)

## DELAWARE

STATE ----- EUGENE KEELEY, Supervisor, Delaware Weights and Mea-  
sures, Drawer D, Dover, Delaware 19901 (Tel. (302)  
736-4823)

## FLORIDA

STATE ----- SYDNEY D. ANDREWS, Director, Division of Standards,  
Florida Department of Agriculture & Consumer Ser-  
vices, 3125 Conner Blvd., Tallahassee, Florida 32301  
(Tel. (904) 488-0645)

WILLIAM A. COGBURN, JR., Metrologist Supervisor,  
Florida Department of Agriculture, Consumer Services,  
3125 Conner Blvd., Tallahassee, Florida 32301 (Tel.  
(904) 488-9295)

STAN DARSEY, Chief, Bureau of Weights and Measures,  
Florida Department of Agriculture and Consumer Ser-  
vices, 3125 Conner Blvd., Tallahassee, Florida 32301  
(Tel. (904) 488-9140)

COUNTY

Dade ----- ARTHUR HERSHBEIN, Deputy Director, Metro Dade County  
Consumer Protection Division, 140 West Flagler  
Street, Room 1604, Miami, Florida 33130  
(Tel. (305) 579-4222)

GEORGIA

STATE ----- S. S. ABERCROMBIE, Asst. Director, Georgia Department of  
Agriculture, Agriculture Building Capital Square,  
Atlanta, Georgia 30334 (Tel. (404) 656-3704)

MARTIN T. COILE, Assistant Director, Weights and  
Measures, Georgia Department of Agriculture, Atlanta  
Farmers Market, Forest Park, Georgia 30050 (Tel.  
(404) 363-7611)

THOMAS E. KIRBY, Director, Weights and Measures  
Laboratory, Georgia Department of Agriculture, ,  
Atlanta Farmers Market, Forest Park, Georgia 30050  
(Tel. (404) 363-7611)

OLIN D. MULLINAX, Assistant Commissioner, Department of  
Agriculture Fuel & Measurement Division, Agriculture  
Building, Capital Square, Atlanta, Georgia 30334  
(Tel. (404) 656-3605)

CURTIS WILLIAMS, Director, Fuel Oil Laboratory, Georgia  
State Oil Laboratory, 5235 Kennedy Road, Forest Park,  
Georgia 30050 (Tel. (404) 363-7597)

HAWAII

STATE ----- GEORGE E. MATTIMOE, Deputy Director, Measurement  
Standards, State of Hawaii, 1428 South King Street,  
P. O. Box 22159, Honolulu, Hawaii 96822 (Tel. (808)  
548-7152)

IDAHO

STATE ----- LYMAN D. HOLLOWAY, Chief, Department of Agriculture,  
Weights and Measures, 2216 Kellogg Lane, Boise,  
Idaho 83702 (Tel. (208) 334-2345)

ILLINOIS

STATE ----- SIDNEY A. COLBROOK, Weights and Measures Program  
Supervisor, Illinois Department of Agriculture,  
Emmerson Building, State Fairgrounds, Springfield,  
Illinois 62706 (Tel. (217) 782-3817)

STEPHEN E. MCGUIRE, Metrologist, Illinois Department of  
Agriculture, Emmerson Building, State Fairgrounds,  
Springfield, Illinois 62706 (Tel. (217) 782-7655)

## CITY

Chicago ----- JESSE BLACKMON, Deputy Commissioner, City of Chicago  
121 N. LaSalle, Rm. 808, Chicago, Illinois 60602  
(Tel. (312) 744-4008)

FRANK DAMATO, First Deputy Commissioner, City of Chicago,  
Consumer Service, 121 N. LaSalle, Rm. 808, Chicago,  
Illinois 60602 (Tel. (312) 744-6878)

INDIANA

STATE ----- ROBERT W. WALKER, Director, Division of Weights and  
Measures, State of Indiana, 1330 West Michigan  
Street, Indianapolis, Indiana 46206 (Tel. (317)  
633-0350)

COUNTY

Clark ----- HAROLD D. BRADSHAW, Inspector, Weights and Measures,  
Clark County, City-County Building, Room 314,  
Jeffersonville, Indiana 47130 (Tel. (812) 283-4451)

(and City of New Albany)

Floyd ----- JAMES M. MOREILLON, Inspector, Weights and Measures,  
Floyd County, 627 East Fourth Street, New Albany,  
Indiana 47150 (Tel. (812) 944-0470)

Gibson ----- WILLIAM R. SEVIER, Weights and Measures Inspector,  
Box 302, Somerville, Indiana 47683 (Tel. (812)  
795-2532)

Lake ----- ALBERT M. MYSOGLAND, Lake County Sealer, Department  
of Weights and Measures, 2293 North Main Street,  
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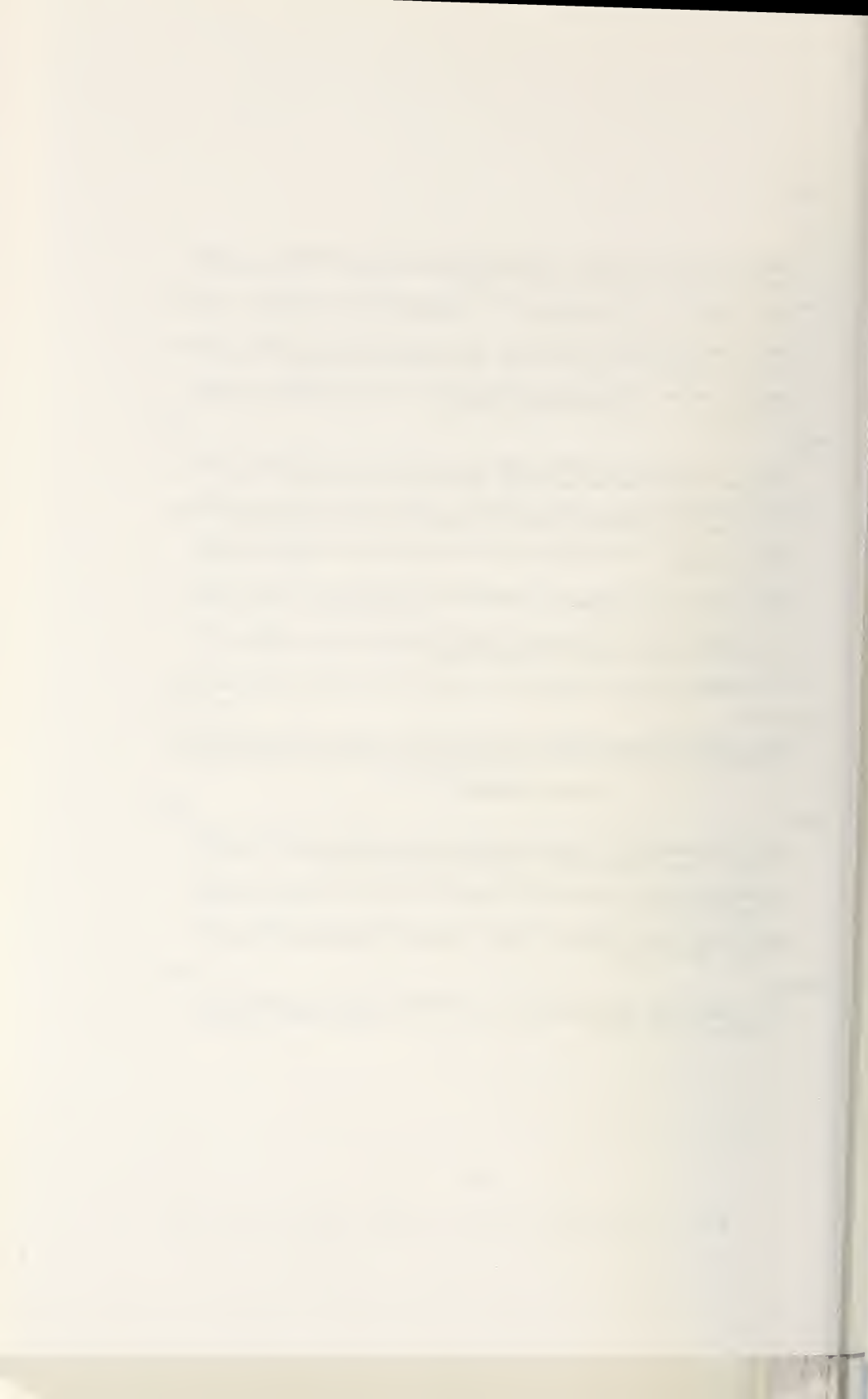
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