

**62<sup>nd</sup> Annual Southern Weights and Measures Association Conference**  
**Laws and Regulations Committee**  
**Agenda**

October 21-24, 2007 – Little Rock, AR

Note: The 2007 L&R Agenda is divided into two sections; **Section I** has carry-over items from the 2007 National Conference on Weights and Measures L&R Report; **Section II** has new proposals.

#### INTRODUCTION

The Laws and Regulations Committee (Committee) will address the following items at its 2007 meeting during the 62<sup>nd</sup> Annual SWMA Conference. Table A identifies agenda items by Reference Key Number, title, and page number. The first three digits of the reference Key Numbers of the items are assigned from the subject series listed below. The fact that an item may appear on the agenda does not mean it will be presented to the SWMA for a vote. The Committee may withdraw some items, present some items for information and further study, issue interpretations, or make specific recommendations for changes to publications listed below. The recommendations presented in this agenda are statements of proposal and not necessarily recommendations of the Committee. The appendices to the report are listed in Table B.

This is a list of the Carry-over Items from the report of the Laws and Regulations Committee (referred to as “Committee” below) from the 92<sup>nd</sup> Annual Meeting of the National Conference on Weights and Measures (NCWM). It is based on the Interim Report offered in the NCWM Publication 16, “Committee Reports,” testimony at public hearings, comments received from the regional weights and measures associations and other parties, the addendum sheets issued at the Annual Meeting, and actions taken by the membership at the voting session of the Annual Meeting. The informational items presented below were adopted as presented when this report was approved.

The agenda contains recommendations to amend National Institute of Standards and Technology (NIST) Handbook 130, 2008 Edition, “Uniform Laws and Regulations,” or NIST Handbook 133, “Checking the Net Contents of Packaged Goods,” Fourth Edition (January 2005). Proposed revisions to the handbook(s) are shown in **bold face print** by ~~striking out~~ information to be deleted and **underlining** information to be added. New items proposed for the handbooks are designated as such and shown in **bold face print**. Text presented for information only is shown in *italic* print. When used in this report, the term “weight” means “mass.”

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**Section I**

Carryover Items from the 2007 National Conference on Weights & Measures

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**Section II**

Southern Weights and Measures Association New Proposals  
No new proposals have been submitted for 2007

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**Details of all Items  
(In order by Reference Key Number)**

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## **232 METHOD OF SALE REGULATION**

### **232-1 Permissive Temperature Compensation for Refined Petroleum Products and Other Fuels**

(This item was not adopted at the 2007 Annual Meeting and was returned to the Committee)

**Sources:** The Southern Weights and Measures Association (SWMA), the Western Weights and Measures Association (WWMA), and the Central Weights and Measures Association (CWMA).

**Note:** This or similar proposals have been on the Committee's agenda for several years and this issue has been reviewed by each of the regional weights and measures associations. The review process resulted in the submission of several different proposals and numerous comments and suggestions for the Committee to consider. Everyone has expressed concern over the scope, cost and impact of establishing a method of sale for petroleum products which requires temperature compensation. This subject has been widely discussed by the NCWM at public forums dating back more than 30 years. A similar proposal was made by NEWMA as recently as 2000 but the Committee withdrew it in 2001. NEWMA noted at that time that Pennsylvania, New Hampshire, Maine, and Canada permit temperature-compensated sales of products like home heating fuel and retail gasoline. Additional historic and background information is available in previous editions of the Committee's agenda. For recent discussions on this subject see Item 232-1 in the Report of the 91<sup>st</sup> NCWM Annual Meeting in 2006 at [www.nist.gov/owm](http://www.nist.gov/owm) on the Internet. It is also available on a searchable DVD format on NIST Special Publication 979 "Reports of the National Conference on Weights and Measures 1905 to 2006," (November 2006) which is available from the NCWM.

**Recommendation:** At its 2007 Interim Meeting the Committee received correspondence from consumer groups and other organizations and heard testimony from weights and measures officials, the petroleum industry (including the American Petroleum Institute (API)), consumers and others regarding temperature compensation of refined petroleum products. The Committee appreciates all of the data, discussion and especially the high level of interest. The Committee acknowledges the media attention this issue has drawn, and the members were pleased to learn that some agricultural commissioners and other policy makers, as well as some governors and state attorneys general, have expressed interest in temperature compensation.

Proponents for the issue spoke of a need to improve the accuracy of measurements of petroleum products because of their cost and of the need to improve accountability, while opponents spoke to the cost of implementing temperature compensation and the potential for confusion in the marketplace. The Committee also was made aware of legislation under consideration in Missouri and Texas that would establish different definitions for a gallon based on the ambient temperature in varied areas of the states. The Committee was especially sensitive to concerns expressed by weights and measures inspectors about the potential cost and increased inspection time they may expend if temperature compensation is allowed in all applications, especially at the retail level.

The Committee duly considered the presentations, discussions, letters, data, media stories, comments received at public hearings and in hallways, and the proposed legislation. The NCWM has posted this information at:

<http://www.ncwm.net/events/index.cfm?fuseaction=interimagenda07>

Here is a list of justifications for adopting a standard that will facilitate the implementation of an orderly yet permissive approach to allowing broader use of temperature compensation in the marketplace.

- Cost of fuel has led to increased consumer and business interest in better methods of measurement, inventory control and accountability. By now everyone has or should realize that ambient temperatures are but one factor which impacts the volume of any liquid. Thus, basing a state's temperature-compensation program on regional ambient temperatures is not a technically valid approach to addressing the issue.

- The use of dual-wall storage tanks and deliveries of fuel directly from refineries result in higher temperature product.
- Awareness and concerns over the impact of temperature on the cost of fuel has come about at the same time advances in technology such as electronics and software have made compensation possible in both new and existing measuring devices at lower costs.
- Increased consumer requests that temperature compensation be used, especially in high volume deliveries for improved measurement accuracy.
- The dramatic growth of public interest in recent years as evidenced by articles in many newspapers and widely read magazines such as *Scientific America*. This national conversation about energy has led to greater consumer awareness, as well as interest on the part of political leaders, of energy issues and has contributed to creating an opportunity for change.

After a thorough discussion and polling by its Chairman, the Committee was unanimous that it would recommend to the NCWM the adoption of a method of sale for refined petroleum products and other fuels. This would allow industry the option of selling these products on the basis of temperature-compensated sales. While the decision to submit the permissive temperature-compensated method of sale for NCWM consideration was unanimous, the representative from the CWMA supported going forward with the recommendation but did not agree with including retail sales in the scope of the regulation. The Committee ultimately decided it was in the best interest of the U.S. commercial measurement system if the NCWM adopted a standard that would provide guidance to states considering legislation in this area, thus supporting the work of the Specifications and Tolerances Committee, the National Type Evaluation Program (NTEP) and others to develop technical requirements and test procedures for both type approval and field testing for devices equipped with temperature compensation. The Committee believes those efforts are critical to facilitating the introduction of temperature compensation to the marketplace, especially in NTEP states as the NCWM learned there were no retail motor-fuel dispensers available with Certificates of Conformance that include temperature compensation functions.

The following topics/considerations were addressed by the Committee:

**1. Temperature compensation is already legal for use in trade unless prohibited by state or local requirements.**

The Committee is aware that temperature compensation is already required or permitted in a number of states for vehicle tank meters, liquefied petroleum gas, and wholesale deliveries to retailers and has been used in the marketplace in these applications for decades. At the WWMA Annual Meeting, the State of California reported that for transactions involving 5000 gal or more, purchasers may request temperature compensation; Idaho said that for transactions involving 8000 gal or more, the purchaser has an option to buy, on a yearly basis, temperature-compensated product and that all terminal transactions are temperature-compensated; Arizona responded that any transactions involving more than 5000 gal must be compensated for temperature; and currently the State of Hawaii is the only jurisdiction which has taken some action to account for temperature variations in retail sales. The Committee heard enough supportive comments from a broad base of weights and measures directors, inspectors and metrologists to recognize that temperature compensation may find broad acceptance in the marketplace, especially once the potential benefits it offers are realized and implementation costs fall.

The Committee also believes that unless prohibited by state law, temperature compensation at retail dispensers is already legal in most states. Additionally, the Committee believes it would be difficult to argue against a measurement practice that could only improve the accuracy and reproducibility of a volumetric measurement. The Committee position is that legal metrology must not stand in the way of the marketplace striving to change the way fuels and other products are marketed and sold.

**2. Under a permissive approach consumers and businesses will decide where and when to implement temperature compensation.**

The Committee is convinced that the marketplace will best determine where and when the benefits from temperature compensation should be implemented to improve accuracy. The Committee recommends the adoption of a method of sale that would allow temperature compensation to be used in sales of petroleum products on a permissive (voluntary) basis, allowing the marketplace (e.g., industry, consumers and other government agencies) to decide if

and when it is appropriate to use temperature compensation in specific commercial applications (e.g., sales at truck stops). This recommendation is proposed solely for the purpose of ensuring the delivery of an accurate volume of petroleum at a specific reference temperature. It is not the intent of the Committee to attempt to define a standard energy content of a liter or gallon of gasoline or other engine fuel with this recommendation.

### **3. Temperature compensation would be permissive, but controlled.**

Although the Committee's recommendation allows for permissive use of temperature compensation, it includes mandatory provisions requiring compensation be made by automatic means to ensure the measured quantity is accurately determined. It also defines a temperature-compensated volume for both liters and gallons, requires the posting of information on dispensers, street signs and on documents to ensure full disclosure and fair competition. Additionally, it requires a business location to have all of the devices operating on temperature compensation on a year-round basis unless a written waiver is granted by the Director.

### **4. The basis of Committee's recommendation is the proposal from the WWMA.**

The Committee's recommendation is based on the proposal submitted by the WWMA, which was developed at its 2006 Annual Meeting in Salt Lake City, Utah. The Committee has made several amendments to the proposal but found it to represent a well reasoned foundation for the recommendation presented below. The CWMA L&R Committee supported the WWMA's proposal and supported submitting it to the NCWM for a vote. The CWMA agreed with the WWMA that temperature compensation is the most equitable method of sale and is currently utilized at every step of distribution except for retail sales. Additionally, the CWMA believes the proposal should not be restricted only to petroleum products, but should also include alternative fuels such as E-85, biodiesel and biodiesel blends. The Committee's recommendation incorporates some of the CWMA's suggestions and includes additional requirements to address many of the concerns raised issue at the 2007 NCWM Interim Meeting open hearings and discussions. For the purpose of this recommendation the Committee uses the definition for "refined petroleum products" as presented in Handbook 130 Engine Fuels, Petroleum Products, and Automotive Lubricants Inspection Law which reads, "products obtained from distilling and processing of petroleum (crude oil), unfinished oils, recycled oils, natural gas liquids, refinery blend stocks, and other miscellaneous hydrocarbon compounds" with the understanding that its intent is that the requirements would apply when petroleum is blended with other products such as ethanol.

### **5. Full disclosure will allow informed consumers to make value comparisons.**

The Committee believes consumers, when educated through marketing and outreach efforts, will accept new technology and measurement practices. When provided with sound information, consumers will gain confidence that government oversight will prevent deceptive practices. The Committee believes the full disclosure provisions of the method of sale will reduce both unfair competition and consumer confusion. If, for example, a truck stop offers temperature-compensated sales of diesel fuel through high-speed dispensers for truckers, the road signs with price per unit of volume (e.g., gallon or liter) and dispensers must include a declaration that the volume is sold on the basis of temperature compensation. If the price per gallon is higher or lower than the usual price per gallon, consumers will be informed that the volume is compensated to a reference temperature. Several people expressed concern over marketplace confusion if diesel fuel is sold on the basis of both compensated and uncompensated volume. It is incorrect to say that there would be two methods of sale for the same product under this recommendation just as it is inaccurate to say that some consumers will not receive a "full" gallon if temperature compensation is used as some opponents to this method of sale have claimed. The reality is that consumers will be able to compare price per gallon between stations and they will receive a "full" gallon as defined under the method of sale regulation. While confusion is possible with any method of sale, the Committee is not deterred by that possibility. If confusion occurs, the proper response is to educate consumers and address any changes identified from the confusion through further refinement of the method of sale. In this application full disclosure will inform consumers that one product is sold on the basis of temperature compensation and one is not. When consumers are educated, they can make sound value comparisons between these choices just as they already make decisions when choosing between different brand name products, octane ratings, additive offerings, and types of fuels. Business and industry is also well equipped and very experienced in educating its customers whenever it chooses to introduce new products or services; so should they decide to use the method of sale, they are sure to introduce it using an informative marketing effort.

The Committee was urged to clarify that there may be situations in which there is a valid contract where the price is based on the fuel being sold on the basis of uncompensated measurement. The Committee agrees with the comment that if a purchaser operating under such a contract fills up at a location where the dispensers are temperature compensated, the contract should prevail in those transactions. Similarly, the Committee heard from the American Petroleum Institute (API) that it should permit either uncompensated or compensated methods of sale at loading-rack meters when such sales are under contract. The Committee believes its proposal will not interfere with the contracts or understandings that API described.

## **6. Costs**

The Committee heard from some users that the lack of temperature compensation is costing them great sums of money while industry representatives said the cost of equipment and installation will cost industry and, ultimately, consumers even larger amounts of money. The cost of any NCWM action is a concern to the Committee which must defend its actions on both sides of any issue. However, it is very difficult to give each side everything it wants in any recommendation. While the Committee is concerned about cost, it is skeptical of the economic claims from both sides in this debate. For example, at the Interim Meeting one estimate of the cost of implementing temperature compensation dropped nearly \$2 billion dollars once industry learned that an alternative technology was available in the marketplace.

That is but one illustration of the weaknesses the Committee saw in cost or damage claims over the years. It dates back to its work in the 1990's on the price verification procedures where some groups claimed that supermarkets were overcharging consumers billions of dollars a year. The Committee never saw data that supported such claims, yet the damage values received wide notice in the media. Some members of the NCWM may remember the claims made during Congressional consideration of the Metric Conversion Act of 1975 that changing to the metric system would cost billions of dollars. The reality is, however, which has been confirmed through several reliable studies, that those high costs never materialized. One reason Congress made conversion to the metric system voluntary was so the costs could be incurred as part of realistic business decisions. For example, the automotive industry found that by simply switching to going metric units when replacement equipment was purchased was one way to reduce the "cost." Another factor which reduced the cost was the advent of technology which made conversions easier or allowed dual-unit displays to be provided on equipment as a standard feature instead of as an option.

The Committee also heard that no action should be taken pending further studies. The Committee is wary of calls that it take no action pending another study or action by Congress. Each State Director in the NCWM determines whether or not to incorporate what is adopted by the NCWM into his or her state law or regulations, not the Committee. Even states that adopt the Method of Sale of Commodities Regulation by reference or citation can take action to exclude a specific section of a uniform regulation that conflicts with other requirements or policies. As for taking time for additional study, the NCWM record on consideration of the issue of temperature compensation dates back to the mid-1970s and has arisen for consideration every few years since that date. The Committee is aware of the history, the issues, the various points of view, and the potential costs of temperature compensation and believes it is time for the NCWM to move forward on temperature compensation by establishing standards by which this method of sale can be brought into the marketplace on a voluntary, yet controlled, basis.

As one speaker alluded to in his presentation, the marketplace is to some degree "intelligent" in that it helps address many factors through its price-setting function and can generally be trusted to balance costs and prices as well as justify investment in new technology and marketing practices if there is a need, demand or opportunity. A voluntary approach will allow early adopters to develop experience and pull advances in technology into the equipment market while competition and other factors will reduce costs even further if the method of sale is broadly adopted. The Committee believes a permissive approach to temperature compensation turns the choice over to the marketplace where, if consumer demand is sufficient, sellers will make a business decision to invest in the technology and marketing according to the new method of sale when the benefits offset costs.

## **7. Limiting the option of temperature compensation to specific applications**

The Committee received suggestions that temperature compensation be limited to certain applications or not be allowed in retail sales, but it did not hear sufficient justification for taking such positions. Temperature

compensation is not new to the commercial measurement system. It is widely used in wholesale transactions in many jurisdictions, and consumers in many states have purchased LPG and oil for heating and other uses for decades on the basis of temperature-compensated sales. No information was presented to the Committee that its use in those applications has been anything but successful. The Committee recognizes that verifying devices with temperature compensation may require additional inspection time and require weights and measures officials to purchase thermometers or other equipment for testing. However, those factors are not sufficient justification to prohibit the marketplace from implementing this method of sale. If a jurisdiction adopts this method of sale and a business decides to use temperature compensation, the weights and measures agency would need to obtain funding to implement appropriate testing procedures to verify devices. However, the Committee would expect that innovation, risk-based testing, and random sampling techniques, as well as technology, would lessen the time required to conduct additional tests just as those factors have reduced the burden of testing many weighing and measuring instruments in the past. .

## **8. Permissive vs. Mandatory Implementation**

The Committee heard from the regional associations and others that temperature-compensated sales should be implemented on a permissive basis. The Committee opposes the inclusion of a future mandatory date at this time. The Committee believes temperature-compensated sales should be market driven and that suppliers will conduct sales on a compensated basis when consumers demand it and should not be required to do so before then. The Committee, based on the comments of many jurisdictions, believes the imposition of a mandatory requirement is too burdensome on the industry, requiring upgrades and possibly the replacement of many meters without adequate justification.

The Committee agreed that a mandatory requirement would not be justified at this point in time. The Committee felt it was important to get some form of regulation regarding temperature-compensated sales of petroleum into Handbook 130 and thought that as many barriers as possible should be removed in order to achieve that goal. Although the Committee's recommendation is a permissive requirement for temperature-compensated sales, the Committee is willing to consider establishing future mandatory dates if a justified need is demonstrated after this permissive regulation is implemented and used for a period of time.

## **9. Requests for Comments**

- a. By proposing to add these requirements to the Method of Sale of Commodities Regulation, the Committee is obligated to point out that if the proposal is adopted it will go into effect on January 1, 2008, in the 18 jurisdictions that indicate they automatically adopt that regulation by reference or citation (see 2006 edition of NIST Handbook 130, "II Uniformity of Laws and Regulations" [page 9] for a list of those states). If the recommendation is adopted in July 2007, some jurisdictions may want to delay its implementation or exempt that particular section from being automatically adopted. Typically, rulemaking may take longer than six months to complete. The Committee would like to receive comments on whether or not it should include a delayed effective date of July 1, 2009, for this regulation.
- b. Whenever the subject of temperature compensation is discussed, the conversation usually includes the possibility of some unscrupulous retailer artificially heating fuels. The Committee is aware that this deceptive practice has occurred from time to time and that the State of Arizona actually forbids the practice; however, the Committee has not addressed it in the following recommendation. The Committee would like to receive comments on whether or not it should add a prohibition on the artificial heating of fuels for the purpose of increasing their volume at the time of sale.
- c. There may be situations where the requirement that all devices that dispense products at a business location would result in a hardship for some retailers or difficulties in implementing the new method of sale for specific customers (e.g., over-the-road truckers). For example, if a station decided to sell gasoline and diesel fuel on a temperature-compensated basis but also has a dispenser for K-1 Kerosene (from which limited sales were made), a waiver from the temperature-compensation requirement on all dispensers could be justified. Likewise, if a chain of truck stops decided to sell diesel fuel on a temperature-compensated basis through its high-output dispensers to truckers (e.g., its prime customers), but did not want to implement temperature-compensated sales through its gasoline dispensers, a waiver could also be justified.

The purpose of the requirement that all devices at a single location be temperature compensated or not is to prevent a retailer from selling through the compensated or uncompensated dispensers when it benefits him or her. The Committee thinks that some flexibility is warranted and could make acceptance of the method of sale easier to implement. The Committee would like to receive comments on whether or not the recommendation should allow the state director to grant (and when justified revoke) written waivers to some provisions if sufficient justification is provided by the business owner.

**Committee Recommendation:** Amend the Method of Sale of Commodities Regulation in Handbook 130 by adding a new Section 2.30. Refined Petroleum Products:

**2.30. Refined Petroleum Products – Permissive Temperature Compensation**

**2.30.1. Where not in conflict with other statutes or regulations, these products may be sold on the basis of temperature-compensated volume.**

**2.30.2. When products are sold on the basis of temperature compensated volume:**

**(a) All sales shall be in terms of liters or gallons with the delivered volume adjusted to 15 °C or gallons with the delivered volume adjusted to 60 °F;**

**(b) Temperature compensation must be accomplished through automatic means.**

**2.30.3. Full Disclosure Requirements**

**2.30.3.1 The primary indicating elements of measuring devices, recording elements, and all recorded or display representations (e.g., receipts, invoices, bills of lading, etc.) shall be clearly and conspicuously marked to show that the product was delivered on the basis of temperature compensated volume;**

**2.30.3.2 When a product is offered for sale on the basis of temperature compensated volume, street signs or other advertisements of its unit price must clearly and conspicuously indicate that the volume is temperature compensated.**

**2.30.4. Other Provisions**

**2.30.3.3 At a business location all sales on a temperature-compensated basis shall be made continuously and for a period of not less than 12 months (e.g., a person may not engage the automatic temperature compensator on a device only during certain times of the year to prevent the person from taking advantage of temperature compensation).**

**2.30.3.4 At a business location which offers products for sale on the basis of a temperature compensated volume, all measuring devices shall dispense on the basis of temperature compensated volume (e.g., a person must not operate some devices at a location with automatic temperature compensators and others without compensators to prevent them from taking advantage of temperature variations).**

**Annotations:**

- 1. As defined in Handbook 130 Engine Fuels, Petroleum Products, and Automotive Lubricants Inspection Law, refined petroleum products are products obtained from distilling and processing of petroleum (crude oil), unfinished oils, recycled oils, natural gas liquids, refinery blend stocks, and other miscellaneous hydrocarbon compounds as well as Biofuels such as E-85 and Biodiesel at various blends.**

2. **A temperature compensated liter is defined as having a reference temperature of 15 °C and a temperature compensated gallon is defined as 231 cubic inches at a reference temperature of 60 °F;**
3. **When a product is sold on the basis of a temperature-compensated volume, it is typically called “net” or “net volume,” whereas the volume before compensation is called the “gross” or “gross volume.**
4. **The metric units are shown solely for the purpose of showing metric equivalents in this uniform regulation in this NIST handbook. There is no requirement that dual units be shown in any full disclosure information required under this section.**
5. **Temperature Compensation may be abbreviated (e.g., Temp Comp, or Compensated to 60 °F) in the interest of space as long as its meaning is clear.**
6. **The seller is not prohibited from providing both gross and net gallons on receipts, invoices, bills of lading or other documentation as long as it is not misleading or deceptive.**
7. **A “business location” means a single outlet and should not be interpreted to mean all of the outlets or locations that a business or company operates in a jurisdiction.**

Action at 2007 Annual Meeting: The Committee received 18 comments requesting for this item to be made informational and to allow the Committee time for additional studies and deliberations. The Committee believes the concerns of the commentators are valid but are issues to be addressed by the S&T and NTEP groups. The additional studies of the method of sale proposal would bring nothing new to the current recommendation that could not be addressed through further revisions next year, if it is decided that the current proposal needs additions or modifications.

The Committee believes that adopting this proposal would provide guidance to policy makers and others currently considering action on temperature compensation at the national, state or local levels. Jurisdictions, who oppose the proposal because their state laws or their policies are against it, will not be affected by the adoption of this method of sale, since their laws will simply prohibit its implementation. The implementation of temperature compensation will be slowed primarily because there is no existing national approved temperature compensation device and NIST Handbook 44 must be revised to set the specifications, tolerances and other technical requirements for this technology. NTEP will then need to undertake its work where needed. However, the Committee acknowledges that some states may move ahead with their own type approvals to allow temperature compensation. The majority of the Committee believed the proposed method of sale was ready for NCWM adoption. There was not a reasonable justification for delaying the adoption of the proposal as presented. Therefore, the Committee recommended adoption of this item.

This item was subjected to a lengthy discussion at the general voting session and several issues were raised along with calls for further study. The issues to be studied are illustrated below in the agenda information from the NCWM's Automatic Temperature Compensation Steering Committee (ATC Committee). The ATC established by the Board of Directors at the 2007 Interim Meeting. On a vote the item did not garner enough support to pass so it will be carried forward for reconsideration at the 2008 Interim Meeting.

Further studies are being led by the ATC Committee which will develop solutions to the technical issues shown below.

The ATC Committee is conducting a public meeting on the issues August 27-29, 2007 in Chicago, Illinois.

Schedule:

Monday, August 27: 1:00 p.m. – 5:00 p.m.

Tuesday, August 28: 8:30 a.m. – 5:00 p.m.

Wednesday, August 29: 8:30 a.m. – 12:00 p.m.

Location: Sofitel Chicago O'Hare  
555 North River Road  
Rosemont, IL 60018  
Ph: 847-678-4488

Group Rate: \$119.00 + tax (Single/Double) Hotel Cut-Off Date: Wednesday, August 15, 2007

Registration: For downloadable registration form, please go to: [http://www.ncwm.net/pdf/atc\\_reg\\_form.pdf](http://www.ncwm.net/pdf/atc_reg_form.pdf)

### Agenda Items

1. **Establishing Standardized Product Densities** – To implement ATC for retail motor fuel the NCWM must agree on product densities to use in volume correction factors. The ATC Committee is conducting an outreach to accumulate data on the densities for various products falling under ASTM Committee D02 standards across the United States. The purpose is to develop a single set of standard densities to be used throughout the country.
2. **Establish Specifications for Temperature Probes** – Standards must be developed for the temperature probes used by field inspectors when testing ATC devices. The ATC Committee will consider standards that have been developed in OIML R117 for temperature probes.
3. **Response time of the Thermometer Well** – The ATC Committee is developing tests to acquire data regarding the response time for thermometer wells used in the field inspection of ATC devices. It is important that inspectors consider the changes in product temperature from the metering chamber to the prover during field tests.
4. **Referencing 15 °C vs. 60 °F** – Most of the standards developed by NCWM reference both, Celsius and Fahrenheit. The ATC Committee will consider if this dual reference is appropriate in setting the standards for ATC. There is a difference depending on which standard is utilized. Canada uses 15 °C, but provers in the U.S. are calibrated to 60 °F. Calibrating ATC devices to 60 °F may be most appropriate.
5. **Field Test Procedures and Temperature Uncertainties Related to the 5-Gallon Test Draft** – Mr. Ross Andersen of New York will be traveling to Canada this month to take part in collaborative studies with Canadian Legal Metrology Officials. He will document data regarding the temperature uncertainties involved in a 5-gallon test draft and perform tests to compare the ATC Committee's draft test procedures to those used in Canada. The results of these studies will be considered by the ATC Committee.
6. **Implementation** – The ATC Committee recognizes that voluntary implementation could frustrate the consumers' ability to compare prices for products. However, the most practical approach to implementation would involve a period of time when some retailers have implemented ATC and others have not. The ATC Committee will look at the expected life cycle of today's dispensers, expected timeline for implementation of NTEP standards for evaluation, concerns for smaller markets, etc. in an attempt to develop a proposal for implementation from permissive to mandatory in the model regulation. The ATC Committee may eventually consider methods raise consumer awareness and understanding of ATC at retail.
7. **Labeling / Signage / Receipts** – Disclosure to the public when ATC is in use is important. It is also important to educate consumers as to what ATC is. The ATC Committee will discuss whether or not our standards should mandate specific language to be used to disclose when ATC is in use and where such disclosure should be placed. Should it be on the street sign, the dispenser, the customer receipt, or all of the above. A resolution to this item could include a recommendation for NIST Handbook 44, NIST Handbook 130, NCWM Publication 14, or all three.
8. **Tax Data** – A survey of the states has been conducted to gather data on current tax laws and the necessity of legislation if ATC were introduced to a state. The ATC Committee will review the results of the survey to identify the obstacles to ATC implementation that currently exist related to tax laws.

9. **Temperature Data** – A standardized procedure for gathering and documenting temperature data at point-of-sale has been developed and will be provided to weights & measures jurisdictions across the country for voluntary data collection. The ATC Committee will discuss timelines for reporting to accommodate gathering and evaluating data prior to the NCWM Interim Meeting in January, 2008 and again prior to the Annual Meeting in July, 2008. The ATC Committee will also discuss some data already at hand.

10. **NTEP Checklist** – The ATC Committee anticipates the NTETC Measuring Sector will be addressing the development of a type evaluation checklist for ATC in retail motor fuel dispensers. They will take a preliminary look at the Canadian type evaluation checklist to see if there are any concerns or recommendations they might make to the Measuring Sector.

For further information please contact:

Don Onwiler, Chairman  
NCWM ATC Steering Committee  
Nebraska Weights & Measures Division  
PO Box 94757  
Lincoln, NE 68509  
402-471-4292 or at donwiler@agr.ne.gov

## 232-2 **Biodiesel Labeling**

**Source:** Central Weights and Measures Association (CWMA)

**Recommendation:** Add the biodiesel labeling requirements contained in Handbook 130 Engine Fuels, Petroleum Products, and Automotive Lubricants Regulation to the Method of Sale of Commodities Regulation:

### 2.XX. Biodiesel.

2.XX.1. Identification of Product. – Biodiesel and biodiesel blends shall be identified by the capital letter B followed by the numerical value representing the volume percentage of biodiesel fuel. (Examples: B10; B20; B100)

2.XX.2. Labeling of Retail Dispensers Containing Between 5 % and 20 % Biodiesel. – Each retail dispenser of biodiesel blend containing more than 5 % and up to and including 20 % biodiesel shall be labeled with either:

2.XX.2.1. The capital letter B followed by the numerical value representing the volume percentage of biodiesel fuel and ending with 'biodiesel blend.' (Examples: B10 biodiesel blend; B20 biodiesel blend), or;

2.XX.2.2. The phrase 'biodiesel blend between 5 % and 20 %' or similar words.

2.XX.3. Labeling of Retail Dispensers Containing More Than 20 % Biodiesel. – Each retail dispenser of biodiesel or biodiesel blend containing more than 20 % biodiesel shall be labeled with the capital letter B followed by the numerical value representing the volume percentage of biodiesel fuel and ending with either 'biodiesel' or 'biodiesel blend.' (Examples: B100 Biodiesel; B60 Biodiesel Blend)

2.XX.4. Documentation for Dispenser Labeling Purposes. – The retailer shall be provided, at the time of delivery, with a declaration of the volume percent biodiesel on an invoice, bill of lading, shipping paper, or other similar document. This documentation is for dispenser labeling purposes only; it is the responsibility of any potential blender to determine the amount of biodiesel in the diesel fuel prior to blending.

**2.XX.5. Exemption. – Biodiesel blends containing 5 % or less biodiesel by volume are exempted from requirements 2.XX.1 through 2.XX.4.**

**Discussion:** It is the Committee's view that this proposal does not impose any new requirements. However, by including these requirements in the Method of Sale of Commodities Regulation, the Committee is obligated to give notice that the requirements will become effective on January 1 of the year following adoption in the eighteen jurisdictions which indicate they automatically adopt that regulation by reference or citation (see the 2006 edition of NIST Handbook 130, "II Uniformity of Laws and Regulations" [page 9] for a list of those states). These requirements have already been adopted and are published in the Engine Fuels, Petroleum Products, and Automotive Lubricants Regulation in Handbook 130.

Section 2.20. of the Method of Sale of Commodities Regulation in Handbook 130 currently contains requirements for the disclosure of oxygenates in gasoline blends. Including requirements for the disclosure of biodiesel and biodiesel blends is consistent with this practice and should be required to ensure consumers are fully informed when making purchasing decisions.

The Committee has received numerous comments in support of this item and has heard from the National Biodiesel Board (NBB) that, in general, supports this item. However, the NBB has requested the Committee keep this item on its agenda as an information item until ASTM finalizes its biodiesel specifications. Waiting for the ASTM biodiesel standard before moving this item forward for a vote will ensure there is no conflict with the those specifications.

At its 2006 Annual Meeting the WWMA L&R Committee received no comments regarding this item. The WWMA supported the NBB request to the Committee to keep this item as informational pending ASTM action. The WWMA concurred that waiting for adoption of the ASTM specifications will prevent conflicts in the final labeling requirement for biodiesel. At a recent CWMA meeting a few comments were received that the biodiesel label requirement should include percentages below 5 %. An update on activity within ASTM to develop a stability specification for B 100 was provided. After negative votes are addressed, ballots will be circulated to add B 5 limit to the D 975 diesel specification and to establish a B 20 specification.

**Committee Action at the 2007 Interim and Annual Meetings:** At the 2007 Interim Meeting the CWMA and others recommended that the Committee keep this proposal on hold until ASTM finalizes its work on the biodiesel blend specifications. In response to those suggestions, the Committee agreed to separate this item from the Fuel Ethanol requirements and carry this item forward as an informational item. At the Annual Meeting several people called for this item to be presented for a vote at the 2008 Annual Meeting and encouraged the Petroleum Subcommittee to encourage all stakeholders to move quickly to resolve their concerns so this important consumer protection requirement can be adopted by the NCWM.

**260 NIST HANDBOOK 133 "CHECKING THE NET CONTENTS OF PACKAGED GOODS"**

No items were carried over but several NIST Handbook 133 items are presented for discussion under the developing issues section and under Item

**270 OTHER ITEMS – DEVELOPING ITEMS**

**INTRODUCTION**

The NCWM established a mechanism to disseminate information about emerging issues which have merit and are of national interest. Developing items have not received sufficient review by all parties affected by the proposals or may be insufficiently developed to warrant review by the NCWM L&R Committee. The developing items listed are currently under review by at least one regional association, subcommittee, or work group (WG).

The developing items are marked according to the specific NIST Handbook into which they fall – Handbook 130 or Handbook 133. The Committee encourages interested parties to examine the proposals included in the appendices and to send their comments to the contact listed in each part.

The Committee asks that the regional weights and measures associations, subcommittees, and WGs continue their work to develop fully each proposal. Should an association, subcommittee, or WG decide to discontinue work on a developing item, the Committee asks that it be notified. When the status of an item changes because the submitter withdraws the item, the item will be listed in a table below. For more details on items that are moved from the Developing Items list to the Committee's main agenda, refer to the new reference number in the main agenda.

### **270-1 Amend Section 2.2.1. in Handbook 130 Uniform Engine Fuels Regulation – Premium Diesel Lubricity**

**Source:** Southern Weights and Measures Association (SWMA)

**Proposal:** Amend Section 2.2.1.in Handbook 130 Uniform Engine Fuels, Petroleum Products, and Automotive Lubricants Regulation as follows:

- 2.2.1. Premium Diesel Fuel.** – All diesel fuels identified on retail dispensers, bills of lading, invoices, shipping papers, or other documentation with terms such a premium, super, supreme, plus, or premier must conform to the following requirements:
- (a) **Cetane Number.** – A minimum cetane number of 47.0 as determined by ASTM Standard Test Method D 613.
  - (b) **Low Temperature Operability.** – A cold flow performance measurement which meets the ASTM D 975 tenth percentile minimum ambient air temperature charts and maps by either ASTM Standard Test Method D 2500 (Cloud Point) or ASTM Standard Test Method D 4539 (Low Temperature Flow Test, LTFT). Low temperature operability is only applicable October 1 - March 31 of each year.
  - (c) **Thermal Stability.** – A minimum reflectance measurement of 80 % as determined by ASTM Standard Test Method D 6468 (180 min, 150 °C).
  - (d) **Lubricity.** – A maximum wear scar diameter of 520 µm as determined by ASTM D 6079. If an enforcement jurisdiction's single test of more than 560 µm is determined, a second test shall be conducted. If the average of the two tests is more than 560 µm, the sample does not conform to the requirements of this part.

**Background:** A member of the petroleum industry believes the test and associated tolerances for lubricity on premium diesel specified in Section 2.2.1.(d) are inconsistent with that for regular diesel. Effective January 1, 2005, the test tolerance for regular diesel lubricity will be the ASTM D 6079 reproducibility of 136 µm (see ASTM D 975-04b). The NCWM has chosen to accept the ASTM reproducibility limits for all diesel (D 975) and gasoline (D 4814) properties (see Section 7.2.2., Reproducibility), but has chosen a different reproducibility limit for premium diesel lubricity without providing any explanation as to why the ASTM reproducibility limit is insufficient. If the NCWM intends to impose a stricter lubricity requirement for premium diesel, it should designate a tighter specification for this property instead of a different test tolerance (e.g., for regular and premium gasoline, premium has a different octane specification than regular but the test tolerance is the same). ASTM reproducibility limits are, by definition, based on establishing a 95 % probability that product that should pass, will pass. Applying an average test as specified in Section 2.2.1.(d) reduces this probability to only 80 %.

The Committee received comments from several members of the Premium Diesel WG (WG) who do not support the item as presented by the petroleum industry member. WG members believed the process that led to the current definition was very thorough and complete and the premium diesel lubricity requirements were established with a full understanding of their implications. The WG members felt that knowledgeable individuals provided input to the

process, which lead to the consensus position contained in the current regulation. The work being done by the WG was reported at meetings of ASTM Subcommittee E-2 every six months. The current regulation has been endorsed by the American Petroleum Institute, the Engine Manufacturer's Association, and the NCWM.

Prior to this requirement being adopted, the ASTM Lubricity Task Force conducted a great deal of research on this topic. Based on their research, the ASTM Lubricity Task Force had concluded that a limit of 520  $\mu\text{m}$  would meet the requirements of equipment in the field. Since the passage of this model regulation, ASTM included a lubricity requirement for No. 1 and No. 2 diesel fuel effective January 1, 2005. The ASTM requirement is also 520  $\mu\text{m}$ .

WG members reported that when this regulation was being written fuels with adequate lubricity provided a functional benefit to the end user. The WG agreed with the ASTM Lubricity Task Force that 520  $\mu\text{m}$  was the correct limit to set for premium diesel. However, the Working Group's review process also indicated increased pump wear for fuels with High-Frequency Reciprocating Rig (HFRR) values greater than 560  $\mu\text{m}$ . The current reproducibility value of the HFRR test method would have placed enforcement well beyond the 560  $\mu\text{m}$  level, essentially allowing fuels with little lubricity protection to be sold as Premium. The WG believed they could not recommend a premium fuel standard that would permit excessive pump wear. Using the statistical tools provided in ASTM D 3244, the WG evaluated an enforcement limit of 560  $\mu\text{m}$ . The statistical tools indicated that a single laboratory reporting the assigned test value would have an enforcement limit of approximately 80 % probability of acceptance, while the average of two separate laboratories reporting the assigned test value would have an enforcement limit of approximately 90 % probability of acceptance. It was agreed that for a premium fuel the average of two test results was the best approach given the current test methods and precision available. Therefore, if a test exceeds 560  $\mu\text{m}$ , then a second test must be run. The average of the two tests must exceed 560  $\mu\text{m}$  before a violation would occur. At this time, the WG members believe this remains the best approach.

**Contact:** NCWM Petroleum Subcommittee, Ron Hayes, Chairman, (573) 751-2922 or [ron.hayes@mda.mo.gov](mailto:ron.hayes@mda.mo.gov).

**Discussion:** At the WWMA 2006 Annual Meeting, the WWMA L&R Committee received only one comment regarding this item, acknowledging the ongoing review by the Petroleum Subcommittee. The WWMA notes that the NCWM L&R Committee has forwarded the proposal for review by the Petroleum Subcommittee and agrees this item should remain Developmental pending the Subcommittee's recommendation.

At its 2006 Interim Meeting, the CWMA indicated that the NCWM Petroleum Subcommittee will make recommendations after ASTM improves the test method's precision and after the conclusion of other tests. The CWMA L&R Committee is awaiting recommendation from the NCWM Petroleum Subcommittee.

**Committee Action at the 2007 Interim Meeting:** The Committee carried this item over as informational. The Committee sent this proposal to the Petroleum Subcommittee and has requested its recommendation on how to proceed with the issue. The Subcommittee suggested this item remain on the agenda as a developing issue until further notice and reported that the activities of ASTM International and the Coordinating Research Council are continuing.

#### **270-2 Amend Handbook 130 Interpretations and Guidelines Section 2.3.2. Guidelines for the Method of Sale of Fresh Fruits and Vegetables**

**Source:** Northeast Weights and Measures Association (NEWMA)

**Proposal:** Amend Handbook 130 Interpretations and Guidelines Section 2.3.2. to recognize and support innovation in modern retail food marketing approaches at all forms of outlets from typical grocery stores to the age-old farm markets.

**Discussion:** The method of sale guidelines for the sale of fresh fruits and vegetables that currently appear in Handbook 130 are outdated and in need of revision. The present guidelines do not recognize current retailing practices and are not expansive enough to cover many exotic and unusual fruits and vegetables that are becoming more common in the marketplace. Additionally, the present guidelines do not take into consideration the necessary limitations experienced by retailers at roadside stands and farmers markets.

The original proposal for this item reflected input from only a single jurisdiction. The Committee was informed that several industry associations have requested an opportunity to review and respond to this proposal. The Committee believes there are several factual errors within the classifications of produce provided, and there are several types of produce still not covered by the provided proposal. The Committee has made this item developmental so it may be more fully developed with input from jurisdictions throughout the country and from affected industry associations and businesses.

**Discussion:** At its 2006 Interim Meeting, the CWMA heard a comment that this item should be moved to informational for a year. The body of the guidelines needs to be circulated within the CWMA before it becomes a voting item. The WWMA L&R Committee received no comments regarding this item. It was noted by the chairman that all are encouraged to provide any input on this item to the Committee. Contact Ross Andersen (NY Bureau of Weights and Measures) at (518) 457-3146 or e-mail at [ross.andersen@agmkt.state.ny.us](mailto:ross.andersen@agmkt.state.ny.us) to submit comments or for further information.

### 2.3.2. Fresh Fruits and Vegetables

(Added 1979, Amended 1980, 1982, and **200X**)

**This guideline applies to all sales of fruits and vegetables. There are two tables, one for specific commodities and one for general commodity groups. Search the specific list first to find those commodities that either don't fit into any of the general groups or have unique methods of sale. If the item is not listed, find the general group in the second table. The item may be sold by any method of sale marked with an X.**

<b><u>Specific Commodity</u></b>	<b><u>Weight</u></b>	<b><u>Count</u></b>	<b><u>Head or Bunch</u></b>	<b><u>Dry Measure (any size)</u></b>	<b><u>Dry Measure (1 dry qt or larger)</u></b>
<b><u>Artichokes</u></b>	<b><u>X</u></b>	<b><u>X</u></b>			
<b><u>Asparagus</u></b>	<b><u>X</u></b>		<b><u>X</u></b>		
<b><u>Avocados</u></b>		<b><u>X</u></b>			
<b><u>Bananas</u></b>	<b><u>X</u></b>	<b><u>X</u></b>			
<b><u>Beans (green, yellow, etc.)</u></b>	<b><u>X</u></b>				<b><u>X</u></b>
<b><u>Brussels Sprouts (loose)</u></b>	<b><u>X</u></b>				
<b><u>Brussels Sprouts (on stalk)</u></b>			<b><u>X</u></b>		
<b><u>Cherries</u></b>	<b><u>X</u></b>			<b><u>X</u></b>	<b><u>X</u></b>
<b><u>Coconuts</u></b>	<b><u>X</u></b>	<b><u>X</u></b>			
<b><u>Corn on the Cob</u></b>		<b><u>X</u></b>			<b><u>X</u></b>
<b><u>Dates</u></b>	<b><u>X</u></b>				
<b><u>Eggplant</u></b>	<b><u>X</u></b>	<b><u>X</u></b>			
<b><u>Figs</u></b>	<b><u>X</u></b>				
<b><u>Grapes</u></b>	<b><u>X</u></b>				
<b><u>Melons (cut in pieces)</u></b>	<b><u>X</u></b>				
<b><u>Mushrooms (small)</u></b>	<b><u>X</u></b>			<b><u>X</u></b>	<b><u>X</u></b>
<b><u>Mushrooms (Portobello, large)</u></b>	<b><u>X</u></b>	<b><u>X</u></b>			
<b><u>Okra</u></b>	<b><u>X</u></b>				
<b><u>Peas</u></b>	<b><u>X</u></b>				<b><u>X</u></b>
<b><u>Peppers (bell and other varieties)</u></b>	<b><u>X</u></b>	<b><u>X</u></b>			<b><u>X</u></b>
<b><u>Pineapples</u></b>	<b><u>X</u></b>	<b><u>X</u></b>			
<b><u>Rhubarb</u></b>	<b><u>X</u></b>		<b><u>X</u></b>		
<b><u>Tomatoes (except cherry)</u></b>	<b><u>X</u></b>	<b><u>X</u></b>			<b><u>X</u></b>

<u>General Commodity Group</u>	<u>Weight</u>	<u>Count</u>	<u>Head or Bunch</u>	<u>Dry Measure (any size)</u>	<u>Dry Measure (1 dry qt or larger)</u>
<u>Berries and Cherry Tomatoes</u>	<u>X</u>			<u>X</u>	
<u>Citrus Fruits (oranges, grapefruits, lemons, etc.)</u>	<u>X</u>	<u>X</u>			<u>X</u>
<u>Edible Bulbs (onions, garlic, leeks, etc.)</u>	<u>X</u>	<u>X</u>	<u>X</u>		<u>X</u>
<u>Edible Tubers (Irish potatoes, sweet potatoes, ginger, horseradish, etc.)</u>	<u>X</u>				<u>X</u>
<u>Flower Vegetables (broccoli, cauliflower, Brussels sprouts, etc.)</u>	<u>X</u>		<u>X</u>		
<u>Gourd Vegetables (cucumbers, squash, melons, etc.)</u>	<u>X</u>	<u>X</u>			<u>X</u>
<u>Leaf Vegetables (lettuce, cabbage, celery, etc.)</u>	<u>X</u>		<u>X</u>		
<u>Leaf Vegetables (parsley, herbs, loose greens)</u>	<u>X</u>		<u>X</u>	<u>X</u>	
<u>Pitted Fruits (peaches, plums, prunes, etc.)</u>	<u>X</u>	<u>X</u>			<u>X</u>
<u>Pome Fruits (apples, pears, mangoes, etc.)</u>	<u>X</u>	<u>X</u>			<u>X</u>
<u>Root Vegetables (turnips, carrots, radishes, etc.)</u>	<u>X</u>		<u>X</u>		

**Committee Action at the 2007 Interim and Annual Meetings:** The Committee carried this item over as informational and will reconsider it when it receives comments from the regional associations, retailers and other industries that may be affected by the proposed amendments. The Committee also realized that the proposed replacement table had been omitted from this item. That oversight has been corrected in this report (see next page). At the Annual Meeting concerns were raised that permitting quart sales of some fruits and vegetables would not be useful or practical and that the Committee should reconsider that provision of the table.

#### Comparison of Current and Proposed Tables

The following comparison was prepared for the NCWM Laws and Regulations Committee at the request of the Central Weights and Measures Association. It compares the current Guideline for the Method of Sale of Fresh Fruits and Vegetables in Section 2.3.2. of the Interpretations and Guidelines Section of NIST Handbook 130 with the changes proposed in Item 270-6. A table which lists the commodities included in the current Guideline but which do not appear in the Specific or General Tables is also provided.

**Key:** Rows that are green indicate that there is no difference between the current and proposed guideline (i.e., see the rows for Artichokes in the sample table shown in “Sample Table to Explain Key Colors.”) Cell or Rows in Yellow indicate that there is a difference between the current and proposed guideline (i.e., see “Dry Measure (1 dry qt or larger) in the header row of the sample table and the cell under the header for count in the row for “bananas.” Explanations of the differences or questions to be resolved are provided in the numbered footnotes which are illustrated in the sample table in the heading for Dry Measure (1 dry quart and larger) and in the rows and columns for Bananas.

<u>Sample Table to Explain the Key Colors</u>					
<u>Specific Commodity</u>	<u>Weight</u>	<u>Count</u>	<u>Head or Bunch</u>	<u>Dry Measure (any size)</u>	<u>Dry Measure (1 dry qt or larger)<sup>1</sup></u>
<u>Artichokes</u>	<u>X</u>	<u>X</u>			
<u>Bananas<sup>2</sup></u>	<u>X</u>	<u>X<sup>2</sup></u>			

Comparison Table

<u>Specific Commodity</u>	<u>Weight</u>	<u>Count</u>	<u>Head or Bunch</u>	<u>Dry Measure (any size)</u>	<u>Dry Measure (1 dry qt or larger)<sup>1</sup></u>
<u>Artichokes</u>	<u>X</u>	<u>X</u>			
<u>Asparagus</u>	<u>X</u>		<u>X</u>		
<u>Avocados</u>		<u>X</u>			
<u>Bananas<sup>2</sup></u>	<u>X</u>	<u>X<sup>2</sup></u>			
<u>Beans (green, yellow, etc.)</u>	<u>X</u>				<u>X</u>
<u>Brussels Sprouts (loose)<sup>3</sup></u>	<u>X<sup>3</sup></u>				
<u>Brussels Sprouts (on stalk)<sup>4</sup></u>			<u>X<sup>4</sup></u>		
<u>Cherries<sup>5,6</sup></u>	<u>X</u>			<u>X<sup>6</sup></u>	<u>X<sup>6</sup></u>
<u>Coconuts</u>	<u>X</u>	<u>X</u>			
<u>Corn on the Cob</u>		<u>X</u>			<u>X</u>
<u>Dates</u>	<u>X</u>				
<u>Eggplant</u>	<u>X</u>	<u>X</u>			
<u>Figs</u>	<u>X</u>				
<u>Grapes</u>	<u>X</u>				
<u>Melons (cut in pieces)</u>	<u>X</u>				
<u>Mushrooms (small)<sup>6,7</sup></u>	<u>X</u>			<u>X<sup>6</sup></u>	<u>X<sup>6</sup></u>
<u>Mushrooms (Portobello, large)<sup>7</sup></u>	<u>X</u>	<u>X<sup>7</sup></u>			
<u>Okra</u>	<u>X</u>				
<u>Peas<sup>8</sup></u>	<u>X</u>				<u>X<sup>8</sup></u>
<u>Peppers (bell and other varieties)<sup>9</sup></u>	<u>X</u>	<u>X</u>			<u>X<sup>9</sup></u>
<u>Pineapples</u>	<u>X</u>	<u>X</u>			
<u>Rhubarb<sup>10</sup></u>	<u>X</u>		<u>X<sup>10</sup></u>		

<sup>1</sup> This amendment changes the minimum dry measure from 1 peck to 1 dry quart. The equivalents are: one Peck = 16 dry pints, 8 dry quarts, ¼ bushel, or 8.810 L

<sup>2</sup> The current guideline forbids sales of bananas by count (only by weight). However, the NCWM permits individual bananas to be sold under the Ready-to-Eat-Food exception in § 1.12 in the Method of Sale of Commodities Regulation.

<sup>3</sup> The current guideline addresses Brussels Sprouts and does not include the “loose” distinction.

<sup>4</sup> This is a new MOS for Brussels Sprouts on “stalks” so there is nothing in the current method of sale to compare this with except that the current provision requires Brussels Sprouts to be sold by weight..

<sup>5</sup> The reference to 4.46 Berry Baskets and Boxes Code in NIST Handbook 44 has been deleted.

<sup>6</sup> If a dry measure of “any size” is ok in Column 3 is an X correct in the 4<sup>th</sup> Column which limits sales to 1 dry quart or larger?

<sup>7</sup> This proposal distinguishes Mushrooms by size between “small” and “large (Portobello)” and introduces the method of sale by count for “large” mushrooms which is not permitted in the current guideline (only by weight or measure).

<sup>8</sup> The current guideline does not allow sales of peas by “dry measure” (only by weight).

<sup>9</sup> The current guideline does not allow sales peppers by “dry measure” (only by weight or count).

<sup>10</sup> The current guideline does not allow sales of Rhubarb by “head or bunch” (only by weight).

<u>Specific Commodity</u>	<u>Weight</u>	<u>Count</u>	<u>Head or Bunch</u>	<u>Dry Measure (any size)</u>	<u>Dry Measure (1 dry qt or larger)<sup>1</sup></u>
Tomatoes (except cherry) <sup>11</sup>	<u>X</u>	<u>X<sup>11</sup></u>			<u>X</u>

<sup>11</sup> The current guideline does not allow sales of tomatoes by “count” (only by weight and dry measure).

<u>General Commodity Group</u> <sup>37</sup>	<u>Weight</u>	<u>Count</u>	<u>Head or Bunch</u>	<u>Dry Measure (any size)</u>	<u>Dry Measure (1 dry qt or larger)</u>
<u>Berries<sup>12</sup> and Cherry Tomatoes</u>	<u>X</u>			<u>X</u>	
<u>Citrus Fruits (oranges<sup>13</sup>, grapefruits<sup>14</sup>, lemons<sup>15</sup>, etc.)</u>	<u>X</u>	<u>X</u>			<u>X</u> <sup>13, 14 &amp; 15.</sup>
<u>Edible Bulbs (onions<sup>16, 17</sup>, garlic<sup>18</sup>, leeks<sup>19</sup>, etc.)</u>	<u>X</u>	<u>X</u> <sup>18</sup>	<u>X</u> <sup>18</sup>		<u>X</u> <sup>15, 17, &amp; 18</sup>
<u>Edible Tubers (Irish potatoes<sup>20</sup>, sweet potatoes<sup>21</sup>, ginger<sup>22</sup>, horseradish<sup>23</sup>, etc.)</u>	<u>X</u>				<u>X</u> <sup>19, 20</sup>
<u>Flower Vegetables (broccoli, cauliflower, Brussels sprouts<sup>24</sup>, etc.)</u>	<u>X</u>		<u>X</u>		
<u>Gourd Vegetables (cucumbers<sup>25</sup>, squash<sup>26</sup>, melons<sup>27</sup>, etc.)</u>	<u>X</u>	<u>X</u>			<u>X</u> <sup>26</sup>
<u>Leaf Vegetables (lettuce, cabbage<sup>28</sup>, celery<sup>29</sup>, etc.)</u>	<u>X</u>		<u>X</u> <sup>28, 29</sup>		
<u>Leaf Vegetables (parsley<sup>30</sup>, herbs<sup>31</sup>, loose greens<sup>32</sup>)</u>	<u>X</u>		<u>X</u> <sup>32</sup>	<u>X</u> <sup>30, 32</sup>	

<sup>12</sup> The reference to 4.46 Berry Baskets and Boxes Code in NIST Handbook 44 has been deleted.

<sup>13</sup> The current guideline does not allow sales of oranges by “dry measure” (only by weight or count).

<sup>14</sup> The current guideline does not allow sales of grapefruit by “dry measure” (only by weight or count).

<sup>15</sup> The current guideline does not allow sales of lemons by “dry measure” (only by weight or count).

<sup>16</sup> The current guideline does not allow sales of onions by “dry measure” (see 17).

<sup>17</sup> The current guideline allows sales by weight or bunch for “spring or green” onions and sales by “weight” for dry onions.

<sup>18</sup> The current guideline does not permit sales of garlic by “dry measure” (only by weight or count).

<sup>19</sup> The current guideline does not allow sales of leeks by “count” or “dry measure” (only by weight).

<sup>20</sup> The current guideline does not allow sales of Irish Potatoes by “dry measure” (only by weight).

<sup>21</sup> The current guideline does not allow sales of Sweet Potatoes by “dry measure” (only by weight).

<sup>22</sup> The current guideline does not include ginger.

<sup>23</sup> The current guideline does not include horseradish.

<sup>24</sup> Brussels sprouts are also in the Specific Commodity Table as “loose” and “on stalk.”

<sup>25</sup> The current guideline does not allow sales of cucumbers by “dry measure” (only by weight or count).

<sup>26</sup> The current guideline does not include squash.

<sup>27</sup> The current guideline does not allow sales of melons by “dry measure” (only weight or count).

<sup>28</sup> The current guideline does not allow sales by cabbage by “count” (only by weight).

<sup>29</sup> The current guideline allows sales of celery by weight or count so perhaps the Committee should decide whether or not “head or bunch” or “count” is the most appropriate descriptor.

<sup>30</sup> The current guideline does not allow sales of Parsley by “dry measure” (only weight or bunch).

<u>General Commodity Group</u> <sup>37</sup>	<u>Weight</u>	<u>Count</u>	<u>Head or Bunch</u>	<u>Dry Measure (any size)</u>	<u>Dry Measure (1 dry qt or larger)</u>
<u>Pitted Fruits (peaches, plums<sup>33</sup>, prunes<sup>34</sup>, etc.)</u>	<u>X</u>	<u>X<sup>33</sup></u>			<u>X<sup>33</sup></u>
<u>Pome Fruits (apples, pears, mangoes<sup>35</sup>, etc.)</u>	<u>X</u>	<u>X</u>			<u>X<sup>34</sup></u>
<u>Root Vegetables (turnips, carrots, radishes<sup>36</sup>, etc.)</u>	<u>X</u>		<u>X<sup>24</sup></u>		

<u>This table lists the commodities that are in the current method of sale guidelines but which are not specifically identified in the proposed tables.</u> <sup>37</sup>	
<u>Commodity</u>	<u>Method of Sale</u>
<u>Apricots</u>	<u>Weight</u>
<u>Beets</u>	<u>Weight or Bunch</u>
<u>Cantaloupes</u>	<u>Weight or Count</u>
<u>Cranberries</u>	<u>Weight or Measure</u>
<u>Currants</u>	<u>Weight or Measure</u>
<u>Eggplant</u>	<u>Weight or Count</u>
<u>Escarole</u>	<u>Weight or Bunch</u>
<u>Kale</u>	<u>Weight</u>
<u>Kohlrabi</u>	<u>Weight</u>
<u>Limes</u>	<u>Weight or Count</u>
<u>Nectarines</u>	<u>Weight or Count</u>
<u>Papaya</u>	<u>Weight or Count</u>
<u>Parsnips</u>	<u>Weight</u>
<u>Persimmons</u>	<u>Weight or Count</u>
<u>Pomegranates</u>	<u>Weight or Count</u>
<u>Rutabagas</u>	<u>Weight</u>
<u>Spinach</u>	<u>Weight or Bunch</u>
<u>Tangerines</u>	<u>Weight or Count</u>

<sup>31</sup> The current guideline does not include herbs.

<sup>32</sup> The current guideline does not allow sales of “Greens (all)” by count or dry measure (only by weight).

<sup>33</sup> The current guideline does not allow sales of plums by count (only by weight or dry measure).

<sup>34</sup> The current guideline does not allow sales of prunes by count or dry measure (only by weight).

<sup>35</sup> The current guideline does not allow sales of mangoes by dry measure (only by weight or count).

<sup>36</sup> The current guideline does not allow sales of radishes by “head or count” (only by weight).

<sup>37</sup> While many of these items may fall under the general categories listed above it may be improve uniformity and simplify the use of the table if all of these commodities is placed in a general category instead of the table saying for instance “Edible Tubers etc.”

The Committee requests that this item be considered at upcoming regional meetings and that comments be submitted by November 1, 2007, for inclusion and review at the Interim Meeting in January 2008.

### **270-3 Amend Handbook 133 Section 2.3, Moisture Allowances to Provide Clearer Guidance**

This item was added to the agenda of the Committee's Working Group on Moisture Loss (see Appendix A) following the 2007 NCWM Interim Meeting. Also see Item 270-8 for an explanation of the Working Groups role and responsibilities.

### **270-4 Laws and Regulations Committee Working Group on Moisture Loss**

At the 2007 NCWM Interim Meeting the Committee established this WG to undertake a review of a number of moisture loss and other issues relating to NIST Handbook 133 "Checking the Net Contents of Packaged Goods." NIST recommended that the NCWM L&R Committee retain responsibility for this project instead of creating a new subcommittee or WG because that would entail additional travel and meeting expenses for all parties. The Board of Directors and the Committee agreed with that proposal because a large portion of this project can be accomplished using e-mail and teleconferences to reduce costs. The Committee also noted that the number of issues on the Committee's agenda has declined so it has time available during its work sessions at the Interim and Annual Meetings to address this project. If additional meetings are needed, they will be scheduled to coincide with the regional meetings to reduce travel and other costs. Another justification for this approach is that it would allow regional representatives on the Committee to develop a greater understanding of moisture loss and enable them to better explain the subject matter to their constituents.

Participation in the WG is open to everyone. The first meeting of the WG will take place on Sunday, July 8, 2007, following the Committee's regular work session at the NCWM Annual Meeting at the Snow Bird Resort near Salt Lake City, Utah. The first major subject of discussion will regard the determination of tare using gel-soaker pads. A discussion of that issue is contained in Item I of Appendix A attached to this report. The group will develop a formal work plan and take up additional items listed in Appendix A as time allows, so attendees should be familiar with those items and issues to be considered during this effort.

At the Annual Meeting the WG met and agreed that information on the appropriate test procedures for using gel soaker pads should be distributed to weights and measures officials and industry following the NCWM Annual Meeting and NIST agreed to publish a newsletter article in the upcoming edition of WMD's Newsletter.

If you would like information or would like to participate in the Working Group on Moisture Loss, contact Tom Coleman at (301) 975-4868 or at [t.coleman@nist.gov](mailto:t.coleman@nist.gov) or Lisa Warfield at 301-975-3308 or [lisa.warfield@nist.gov](mailto:lisa.warfield@nist.gov) via email.

### **270-5 Petroleum Subcommittee**

The Petroleum Subcommittee met on January 24, 2007, at the NCWM Interim Meeting in Jacksonville, Florida, to undertake a review of a number of significant issues related to fuel standards. Their first major project is to undertake a major review and update of the Uniform Engine Fuels, Petroleum Products, and Automotive Lubricants Regulation in Handbook 130. The goal of the Subcommittee is to prepare and submit a major revision of this regulation for consideration by the Committee at the 2008 Interim Meeting. The Subcommittee also conducted a review of the Engine Fuels, Petroleum Products, and Automotive Lubricants Law and will prepare suggested changes for that uniform law as well. Another project will be to update and possibly expand the Basic Engine Fuels, Petroleum Products, and Lubricants Laboratory Publication which will then be made available on the Internet. The Subcommittee will undertake other projects as time and resources permit.

The Petroleum Subcommittee also met at the Annual Meeting and continued its work on a number of items in addition to preparing a major revision of the Fuel Ethanol Labeling requirement in Item 232-2.

The Chairman of the Petroleum Subcommittee is Ron Hayes, Missouri, who can be contacted at (573) 751-2922 or at [ron.hayes@mda.mo.gov](mailto:ron.hayes@mda.mo.gov). If you would like to participate in the Petroleum Subcommittee, contact Ron Hayes or Ken Butcher, NIST L&R Technical Advisor, at (301) 975-4859 or [kbutcher@nist.gov](mailto:kbutcher@nist.gov) via e-mail.

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Vicky Dempsey, Montgomery County, Ohio

Roger Macey, California

Stephen Benjamin, North Carolina

Joe Benavides, Texas

John P. Gaccione, Westchester County, New York

Ron Hayes, Missouri, Chairman, Petroleum Subcommittee

Pete O'Bryan, Foster Farms, Associate Member Representative

Doug Hutchinson, Canada, Technical Advisor

Tom Coleman, NIST, Technical Advisor

Lisa Warfield, NIST, Technical Advisor

Ken Butcher, NIST, Technical Advisor

## **Laws and Regulations Committee**

## Appendix A

### L&R Committee Work Group on Moisture Loss

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**\*NOTE:** These documents could not be included in this publication because they are only available in Adobe PDF format. NIST will provide copies on request. Please contact Tom Coleman at (301) 975-4868 or at t.coleman@nist.gov to obtain them or contact Lisa Warfield at 301-975-3308 or lisa.warfield@nist.gov

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**Detail of all Items**  
**(In order by Reference Key Number)**

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**Moisture Loss and Other Issues for Consideration by the NCWM Laws and Regulations Committee and the Board of Directors**

**INTRODUCTION**

The Weights and Measures Division (WMD) prepared this document at the request of Mike Cleary, Chairman of the NCWM, to detail several moisture loss and other package inspection issues to be studied under this project with the goal of developing recommendations for amendments to NIST Handbook 133 (HB 133) in 2008. There are four items listed below and most of the resource material is included to enable this document to serve as an agenda and comprehensive resource.

WMD provided this outline for consideration by the NCWM L&R Committee, the Board of Directors and other interested parties with the goal of developing a consensus on whether or not there is sufficient justification to study the issues described below.

**Item 1. Gel Soaker Pads**

Several weights and measures officials are concerned that NIST HB 133 does not provide adequate guidance on how to verify the net weight declaration on packages where “gel soaker pads” are used in the package to absorb moisture.

Based on information that WMD has received, this discussion paper is provided as a technical examination of the use of “gel type” soaker pads when determining net weight. Gel soaker pads contain granules of a highly absorbent compound that soaks up fluid and retains it so efficiently that the “usual” methods of drying (pressure, wiping and air) do not allow the recreation of “Used Dry Tare.” According to two manufacturers, “gel-based soaker pads” can absorb up to 50 times their original weights in fluid compared to “cellulose-based fluff pulp” which will absorb only two to four times its weight (see [www.thermasorb.com](http://www.thermasorb.com) and [www.stockhausen-inc.com](http://www.stockhausen-inc.com)). Gel-type soaker pads are used by industry to: (1) extend shelf life thus reducing repackaging costs, (2) reduce bacterial growth, and (3) improve the “presentation of packages” by absorbing blood and fluid, eliminating free flowing liquid in the package.

Inspection problems with this type of tare arise when officials attempt to verify net weight declarations on packages which have been wrapped and labeled at a location other than where the commodity is inspected/tested since officials have no access to “unused dry tare.” Some officials report that it is impossible to dry these types of soaker pads using traditional drying procedures and have even attempted to use microwave ovens to establish “used dry tare.” WMD discourages the use of microwave ovens or other extreme drying methods for drying tare materials because (1) unused “dry” tare materials have a natural moisture content which cannot be reestablished using most heating methods [e.g., for gel-pads this could be 5 % or more]; (2) the intensity/power of microwave ovens varies substantially from device to device so, given the range of variability, it would be impossible to suggest a power setting or heating time that could be considered reasonable, repeatable, and safe; and (3) a more practical concern is that an official could overheat tare material and damage the microwave or cause even more serious problems such as the possibility of fire.

WMD solicits recommendations and comments from all concerned who have interest in this topic. Please consider possible solutions to allow accurate measurement practices that permit officials to safely recreate “used dry tare” for net weight verification on products using “gel-type” material.

WMD believes the requirements of Handbook 133 are written broadly enough to apply to all types of tare materials including those which are “gel based.” Under the definition of “Used Dry Tare” officials use air drying, washing, scraping, pressure, or other techniques which can involve more than normal household procedures but do not go so far as to include laboratory procedures such as oven drying. The field test procedures in NIST HB 133 were developed to provide uniform procedures to enable officials to dry out “used” tare to recreate as close as possible the weight of “unused tare material” that the packager used. When a packager uses a tare material that does not permit the recreation of unused dry tare (and the official does not have access to “unused dry tare” material or to readily

accessible reliable information on tare), the official is limited to drying at least two samples of the tare material as best he can using the procedures described by the handbook; he then can use an average tare to determine a net weight. If the packages are then found to be underweight, the packer must be permitted to provide information on whether or not the average tare value used by the official was reasonable or provide other information to the official to defend the net weight claims on the label. Since this is really the same opportunity any packer of any type of tare material has available to him, WMD believes the current guidance in Handbook 133 is adequate.

A test procedure in Handbook 133 is necessary to ensure that weights and measures can continue to maintain marketplace surveillance to ensure equity and fair competition while still recognizing reasonable moisture loss or gain as required under both federal and state laws and regulations. The relevant sections describing the tare definition and determination procedures from 4<sup>th</sup> edition of NIST Handbook 133 (2005) are shown below:

*Used Dry Tare*

*Used Dry Tare is defined as follows: Used tare material that has been air dried, or dried in some manner to simulate the unused tare weight. It includes all packaging materials that can be separated from the packaged product, either readily (e.g., by shaking) or by washing, scraping, ambient air drying, or other techniques involving more than “normal” household recovery procedures, but not including laboratory procedures like oven drying. Labels, wire closures, staples, prizes, decorations, and such are considered tare. Used Dry Tare is available regardless of where the packages are tested. The net content procedures described in this handbook reference Used Dry Tare.*

*How is a tare weight determined?*

*Except in the instance of applying unused dry tare, select the packages for the initial tare sample from the sample packages. Mark the first two (three or five) packages in the order the random numbers were selected; these packages provide the initial tare sample. Determine the gross weight of each package and record it in block a, “Gross Wt,” under the headings “Pkg. 1,” “Pkg. 2,” “Pkg. 3,” etc. on the report form. Except for aerosol or other pressurized packages, open the sample packages, empty, clean, and dry them as appropriate for the packaging material.*

NIST Handbook 133 is available online at: <http://ts.nist.gov/WeightsAndMeasures/h1334-05.cfm>.

**Item 2. Moisture Loss Guidance in NIST Handbook 133**

The three items shown below were taken from the L&R Report of the 2004 89<sup>th</sup> NCWM Annual Meeting Proceedings and later agendas including an issue from the Committee’s 2007 Interim Meeting agenda. The Committee withdrew two of these items in 2004 and asked NIST to review the moisture loss sections of NIST Handbook 133, revise them to improve their readability, and, where appropriate, add additional information or clarifications.

NIST conducted the promised review but found there were several suggestions contained in these two items. A few of the suggestions raised substantive questions about what needs to be added to NIST Handbook 133 and which questions would be the most useful or practical for field officials. NIST believes that responding to some of the suggestions or questions could lead to extensive revisions to the handbook. This level of discussion will take considerable time and effort for the Committee, and WMD would like to ensure everyone has a full understanding of the concerns and agrees to the necessity for change so time and resources will not be wasted. The Committee should review these sections and identify what information administrators need versus what information field officials need to perform their duties.

**260-2 W Amend § 1.2, Package Requirements**

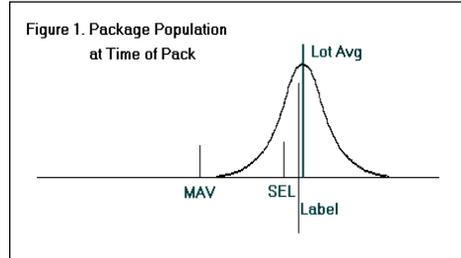
(This item was withdrawn.)

**Source:** Northeastern Weights and Measures Association (NEWMA). (See Item 250-3 on page L&R-18 in the Report of the 88<sup>th</sup> NCWM Annual Meeting in 2003.)

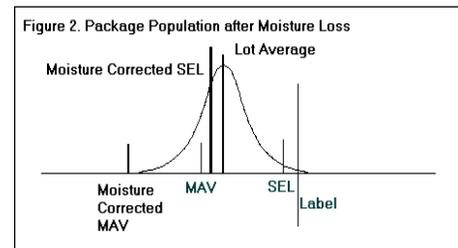
**Recommendation:** The Committee reviewed the following proposal to amend the section “Why do we allow for moisture loss or gain?” in Handbook 133, Section 1.2, Package Requirements (page 4) as follows:

**Why do we allow for moisture loss or gain?**

Some packaged products may lose or gain moisture and, therefore, lose or gain weight or volume after packaging. The amount of lost moisture depends upon the nature of the product, the packaging material, the length of time it is in distribution, environmental conditions, and other factors. Moisture loss may occur even when manufacturers follow good distribution practices. Loss of weight “due to exposure” may include solvent evaporation, not just loss of water. **Note that allowances for loss or gain of moisture only apply to packages of commodities where the moisture has no value to the consumer (See Jones vs. Rath).**



For loss or gain of moisture, **you** apply the moisture allowances to the maximum allowable variations permitted for individual packages and to the average net quantity of contents before determining the conformance of a lot. **You may apply the allowance before measuring the package errors or after. When applying the allowance before the measurements, you essentially correct each package back to theoretical weight at time of pack (see Figure 1 at right). When applying the allowance after measuring the package errors, you correct the MAV and SEL to recognize the moisture loss as in Figure 2 at right. You can find specific directions for applying the allowances in tests in Section 2.3.**



This handbook provides “moisture allowances” for some meat and poultry products, flour, and dry pet food (see “Moisture Allowances” in Chapter 2). These allowances are based on the premise that when the average net weight of a sample is found to be less than the labeled weight, but not by an amount that exceeds the allowable limit, either the lot is declared to be within the moisture allowance or more information must be collected before deciding lot compliance or noncompliance.

**Background:** The original proponent of this item provided the following written issues and justification. These apply to both this item and the next item (260-3: Amend § 2.3 Basic Test Procedure):

What products are covered by the requirement to recognize loss/gain of moisture in distribution? The reference to the Rath vs. Jones case in Chapter 1 attempts to find an answer. The NEWMA believes this may be premature and should be removed from the item for the short term to help develop a solution. However, this is a battle that will have to be fought somewhere in the future since regulators get claims of moisture loss from diverse packers as an excuse for packages that fail to have labeled net weight. The claims have ranged from windshield washer fluid in plastic jugs to canned tomato sauce. Where can the official turn to get an answer if not to this handbook? If the committee believes there is a better way, the NEWMA would like some guidance.

When do you apply the moisture allowance in the test process? Within the handbook itself, the method is either not clear or some of the text is wrong. In Chapter 1 the text indicates that you must apply the allowance before the test (i.e., adjusting by using Box 13a and thus lowering the NGW in Box 14). In Chapter 2, the text appears otherwise. You are directed to add the moisture allowance to the MAV on page 18. You are further directed to compare the difference between sample average and SEL to the moisture allowance on page 19. Both of these instructions can only make sense if the value in Box 13a was not included in the nominal gross weight calculation in Box 14. At the very least these sections fail to provide clear guidance. The proposal attempts to clarify that you can make the correction either before or after and attempts to provide procedures to do that in each case. Before works great for products with established moisture allowances, but it is not possible to apply a correction before the test when dealing with other products. For these other products, you must do additional

investigation to determine the magnitude of the loss and you must apply it after the field official has completed the testing. It may also be beneficial to do the adjustment afterwards for products with established moisture loss allowances. Since both before and after methods can provide equivalent results, they should both be recognized in the Handbook. The proposal does this in changes for both Chapters 1 and 2.

Shouldn't all the established moisture allowances be listed in one place, rather than being listed as separate items? The proposal changes the question from one of how you apply the allowance for a specific product to one of what products have established allowances. This brings these all together in one section that is easily found by an inspector.

How do you establish moisture allowances for products not in the list in 3 above? The handbook provides no guidance whatsoever! In the last line at the bottom of page 17, the text directs the inspector to follow steps if the product is listed, but says nothing about the products that are not listed in the handbook. This is a huge omission that has many officials wondering what to do. The result is that some packers bluff by playing the moisture loss card even when not entitled to a loss (e.g., canned goods) and many officials back away from these products for lack of direction. The proposal included the provision for comparing time of pack data with actual field data for moisture content that was in the 3<sup>rd</sup> edition. It also would permit using data from a scientific study provided by the manufacturer in support of any claim of moisture loss.

Why do we have a different method of evaluating the test results for products with moisture loss than for other products? The basic procedure for evaluating test results calls for evaluating the individual packages against the MAV, and evaluating the sample average against the SEL. On page 19, that procedure is no longer used and instead you have to look at a difference between the sample average and the SEL and not compare it to the moisture allowance. Recently we changed the method of calculating the  $R_c$  for tare variability to avoid having different methods for different types of packages. Consistency helps inspectors apply the standard uniformly. The NEWMA believes that we should always compare sample average to the SEL and this can be accomplished easily by adjusting the SEL rather than looking at differences. Thus we would follow the same process in evaluating the results in all cases. The only difference is in how we arrive at the SEL and MAV when applying the moisture loss allowance after the test. If you use Box 13a before the test, this is done automatically. If you follow the proposed procedure after the test, you calculate a moisture-corrected MAV and a moisture-corrected SEL and simply reevaluate the original test data. While you might get the same result using the procedure on page 19, it uses a different evaluation process and is difficult to understand particularly in how Box 13a is or is not used in the calculation of NGW.

**Discussion:** One state believes the explanations provided in Handbook 133 pertaining to moisture loss are inadequate. In considering this proposal, however, the Committee concluded that the reference to the Jones vs. Rath court case is inappropriate and inaccurate. The Committee considers the additional language provided regarding the application of moisture loss unnecessary and confusing. NIST has agreed, however, to review the moisture loss section of Handbook 133 to see if it can be written more clearly. The Committee has withdrawn this item.

### **260-3 W Amend § 2.3 Basic Test Procedure**

(This item was withdrawn.)

**Source:** Northeastern Weights and Measures Association (NEWMA). (See Item 250-4 on page L&R-19 in the Report of the 88<sup>th</sup> NCWM Annual Meeting in 2003.)

**Recommendation:** The Committee reviewed the following proposal to delete the current “**Moisture Allowances**” discussion in Handbook 133, Section 2.3, Basic Test Procedure (pages 17 through 19), and replace it as follows:

#### **Moisture Allowances**

#### **What products have an established moisture allowance?**

Flour and dry pet food have a moisture allowance of 3 % of the labeled net weight. Note: Dry pet food means all extruded dog and cat foods and baked treat products packaged in Kraft paper bags and/or cardboard boxes with a moisture content of 13 % or less at the time of pack.

Meat and poultry products from a USDA-inspected plant are permitted no moisture allowance when tested under a Category A sampling plan with Used Dry Tare.

Meat and poultry products from a USDA-inspected plant are permitted the following moisture allowances when tested under a Category A sampling plan with Wet Tare. Note: When there is free flowing liquid or absorbent packaging materials in contact with the product, all free liquid is part of the wet tare.

For packages of fresh poultry that bear a USDA seal of inspection, the moisture allowance is 3 % of the labeled net weight. For net weight determinations only, fresh poultry is defined as poultry above -3.3 °C (26 °F). This is a product that yields or gives when pushed with the thumb.

For packages of franks or hotdogs that bear an USDA seal of inspection, the moisture allowance is 2.5 % of the labeled net weight.

For packages of bacon, fresh sausage, and luncheon meats that bear a USDA seal of inspection, there is no moisture allowance if there is no free-flowing liquid or absorbent materials in contact with the product and the package is cleaned of clinging material. Luncheon meats are any cooked sausage product, loaves, jellied products, cured products, and any sliced sandwich style meat. This does not include whole hams, briskets, roasts, turkeys, or chickens requiring further preparation to be made into ready-to-eat sliced product. When there is no free-flowing liquid inside the package and there are no absorbent materials in contact with the product, Wet Tare and Dried Used Tare are equivalent.

These allowances are based on the premise that when the average net weight of a sample is found to be less than the labeled weight, but not by an amount that exceeds the allowable limit, either the lot is declared to be within the moisture allowance, or more information must be collected before deciding lot compliance or noncompliance.

*How do you determine the allowance for products without an established moisture allowance?*

For any product subject to moisture loss/gain, you may determine the appropriate moisture loss allowance based on a valid, scientific study. You may not use arbitrarily chosen allowances for moisture loss/gain. Many packers have conducted studies that they can provide in support of any claim that the product lost/gained moisture. Any such study should have included a variety of environments that simulate the potential distribution chains that could be encountered. You may use the moisture loss limits found in such study as an allowance in a compliance test.

*What is the accepted method to determine the actual moisture loss for a lot?*

Where the packer measures and records the moisture content of product in each lot, you may request a copy of that data to be compared to the moisture content of the product offered for sale. You must select a random sample of the product offered for sale and have it tested for moisture content using a scientifically verified test procedure, e.g. like those in the Official Methods of Analysis of the Association of Official Analytical Chemists (See Appendix D). The actual moisture loss is calculated as the moisture content (percent) at time of pack minus moisture content (percent) at time of sale. Use the difference obtained to calculate the actual moisture loss for the lot by multiplying it times the label quantity. Use this as the moisture allowance in the official test. In the case of moisture gain, this value will be a negative number.

## Calculations

### How do you apply a moisture allowance when conducting a test?

Moisture allowances may be applied either prior to testing or after testing. These two methods are mathematically equivalent means of adjusting both the individual package errors and the sample average. It is common practice to apply the moisture correction prior to the test for those products with established moisture allowances like flour and dry pet food. In most other cases the correction is made after the test since moisture loss data will probably be obtained as part of the follow-up investigation after the initial test has failed.

To compute the moisture loss allowance prior to testing, you correct the nominal gross weight in Box 14 for moisture loss. Find the value of the allowance by multiplying the labeled quantity by the decimal percent value of the allowance. Enter this value in Box 13a on the form. The nominal gross weight is found by adding the average tare (Box 13) to the label quantity (Box 1) and subtracting the moisture allowance (Box 13a). Lot compliance is evaluated in the normal way using decision criteria in Boxes 16 and 24 on the report form.

Example: Labeled quantity of a bag of flour is 2 lb and average tare is 0.04 lb (Box 13). Moisture Allowance is 3 % (0.03) of 2 lb = 0.06 lb.  
Nominal Gross Wt. = 2 lb + 0.04 lb – 0.06 lb = 1.98 lb (record this value in Box 14).

To compute the moisture loss allowance after testing, you correct only the MAV and SEL for moisture loss. Perform your initial test with no moisture allowance in Box 13a. When moisture loss data becomes available, find the value of the allowance by multiplying the labeled quantity by the decimal percent value of the moisture loss or allowance. Lot compliance is evaluated using decision criteria in Boxes 16 and 24 on the report form and the moisture corrected MAV and SEL respectively.

Example: Labeled quantity of a package of rice is 2 lb, average tare is 0.04 lb (Box 13), MAV (Box 3) is 0.07 lb, and SEL (Box 23) is 0.023 lb.  
Moisture content at time of pack was 13.4 % (packer data).  
Moisture content at time of sale is 10.6 % (lab data).  
Moisture loss is (13.4 % to 10.6 %) = 2.8 %.  
Moisture allowance is 0.028 x 2 lb = 0.056 lb.  
Moisture Corrected MAV is 0.07 lb + 0.056 lb = 0.126 lb – Compare each package error measured in the initial test to this moisture corrected MAV using criteria in Box 16.  
Moisture Corrected SEL is 0.023 lb + 0.056 lb = 0.079 lb – Compare the sample average error in the initial test to this moisture corrected SEL using criteria in Box 24.

**Background:** The following information was provided by the original proponent of this item: The products that have established moisture allowances are not clearly stated. Currently the handbook only poses the question “What is the moisture allowance for flour and dry pet food?” It does not state if any other products have moisture allowances. In addition, the Handbook gives no guidance on what to do for products that do not have an established moisture allowance.

The “Calculations” section on page 18 is confusing and does not distinguish between applying a moisture allowance before or after testing. The current method of comparing the moisture allowance to the difference between the average error and the SEL is confusing. The current handbook does not address commodities that are packed in sealed containers or how to treat commodities packed on the premises.

**Discussion:** One state believes that the explanations provided in Handbook 133 pertaining to moisture loss are inadequate. In reviewing this proposal the Committee considered the proposed additional language confusing, and inaccurate. The Committee does agree that the “Calculations” section on page 18 needs to do a better job of distinguishing between moisture allowances applied before testing and those applied after testing. The Committee believes there are extensive problems with this proposal as submitted. NIST has agreed to review

the moisture loss section of Handbook 133 to see if it can be written more clearly. The Committee has withdrawn this item.

**270-7 Amend Handbook 133 Section 2.3, Moisture Allowances to Provide Clearer Guidance**

(This Item was added to the agenda of the WG on Moisture Loss following the 2007 Interim Meeting)

**Source:** Northeast Weights and Measures Association (NEWMA)

**Proposal:** Amend Handbook 133 Section 2.3, Moisture Allowances (pages 17 through 19 of Handbook 133) to provide clearer guidance.

**Background:** The issue of moisture loss is complex. NIST Handbook 133 currently provides specific guidance on the determination and application of moisture allowances for only a limited number of commodities. Concerns have been raised that this guidance is confusing and difficult to understand, particularly with regard to when moisture loss is applied (i.e., at the time of inspection or subsequent to the inspection). Requests have been received to reword this section to make it easier to understand and apply.

In addition, NIST Handbook 133 provides little guidance on the determination and application of moisture allowances for commodities other than those specifically listed. Weights and measures jurisdictions across the country have been struggling with how to properly handle moisture loss during packaging inspections and need more definite guidance on this issue.

The Committee does not believe it has the time or expertise to address properly the issue of moisture loss within the structure of the NCWM. The Committee has decided to request activation of a NIST Moisture Loss WG to establish more effective and extensive guidance to the NCWM regarding the proper determination and application of moisture loss.

**Discussion of this Item by the WWMA:** The WWMA L&R Committee heard that a meeting was tentatively planned for November 2006; the meeting was delayed to allow time for everyone to identify and agree on the issues to be addressed by the group to ensure that expectations for the meeting results were clear. The Weights and Measures Division (WMD) has agreed to fund the travel and attendance of one NCWM representative. Leading issues include providing additional guidance in Handbook 133 regarding the determination and application of appropriate moisture loss allowances in package inspections, with noted examples including how to address gel soaker pads in poultry/meat packages as well as how to determine moisture allowances for pasta, rice, and other commodities for which there exist no established moisture loss allowances. Additionally, guidance regarding application of moisture loss allowances at the point-of-pack should be addressed.

An industry representative urged involvement in the meeting and ensuing work on Handbook 133 amendments from the Food and Drug Administration (FDA) and the U.S. Department of Agriculture (USDA) to ensure input and consensus from all relevant agencies. He further emphasized the need to review and consolidate all decisions and directives from any and all court rulings regarding moisture loss issues. Factors to be considered in determining and applying appropriate moisture loss allowances and influences upon such losses include commodity stability limits and varying environmental conditions at packing plants such as relative humidity and constant temperature rooms maintained at different temperature levels. The industry representative also urged that guidance be provided to industry members regarding the types of data needed to be tracked and provided by packers/manufacturers in addressing moisture allowance determinations.

**Discussion of this Item by the CWMA at its 2006 Interim Meeting:** A comment was heard from industry that this needs to be addressed in order for businesses to be competitive. The USDA and FDA need to be involved in the development of this item. A meeting is tentatively scheduled for November prior to the NCWM Interim Meeting. There was general agreement that in order for this meeting to be effective, the USDA and FDA must be present. Comments were heard in support of using the New York proposal to correct the error in Handbook 133.

**Item 3. WMD Package Inspection and Moisture Loss Guidance Letter – Withdrawn**

WMD believes there is some useful information for weights and measures officials and industry contained in the 2005 Memorandum that WMD issued to state Weights and Measures Officials and other interested parties, entitled “Verifying the Net Contents of Packaged Goods and Recommended Procedures for Moisture Allowances.” WMD withdrew the memorandum at the request of Kraft Foods which detailed a number of concerns about the guidance contained in the WMD communication. The Kraft Foods letter was prepared by Steven Steinborn of Hogan and Hartson and was dated January 31, 2006. WMD recommends the committee review both documents to resolve the corporation’s concerns where possible and determine if there is any information in the WMD letter which can be revised and republished to assist weights and measures officials in dealing with net quantity of contents. The WMD Memorandum and Kraft’s Letter are presented in Reference Section II below.

**Item 4. WMD Suggestions**

**a. Seek Greater Recognition of NIST Handbook 133 by FDA and other Federal Agencies.**

WMD would like to avoid frequent amendments to NIST Handbook 133 because, unlike NIST Handbook 44, it is not widely adopted automatically. Many jurisdictions have to adopt new versions of Handbook 133 using their Administrative Procedures Acts. Another consideration is that the USDA adopts versions of the Handbook which then preempts other versions from being used to verify the net quantity of packages put up under that agency’s supervision. In the past WMD has found that several jurisdictions have used the wrong edition of NIST Handbook 133 to take action against USDA-inspected products simply because they used a newer version of the Handbook than had been adopted by the USDA. WMD believes that USDA adoption gives a strong endorsement and recognition to the Handbook. WMD also believes the 4<sup>th</sup> edition of NIST Handbook 133, whose core elements have been in use by the states since 1994, should be recognized by the FDA and all other agencies to eliminate any uncertainty over its use by the states. Perhaps it is time that the NCWM consider petitioning the FDA to provide some type of formal recognition of the Handbook. WMD believes that establishing a 5-year review cycle for NIST Handbook 133 may be one way to ensure it is acceptable to other agencies and that this will help avoid the confusion over which edition is currently in effect.

**b. Create a new supplement or website to NIST Handbook 133 which would provide useful information to administrators, field officials and industry.**

WMD would like to explore the possibility and usefulness of creating a new publication or website called NIST Handbook 133-1 which would provide supplementary information and guidance on net quantity of contents testing and moisture loss for administrators and industry. The publication or website would be “informative,” thus it would not include regulatory requirements. Instead it would be used to provide additional guidance and more examples than can be included in NIST Handbook 133 itself. Such a publication or website could also be used to provide complete full-size copies of the various inspection forms and worksheets contained in Handbook 133 and other useful tools developed by jurisdictions. The publication or website could also include a variety of other information related to net contents verification, random sampling and could include appropriate information from Federal Regulations and policies as well as Frequently Asked Questions. Currently in NIST Handbook 130 Interpretations and Guidelines there are sections related to moisture loss, point-of-pack inspections and administrative procedures which may not be well known or readily accessible. These could be updated and moved to the new publication or website.

For example:

- 2.2.5. Lot, Shipment, or Delivery
- 2.5.6. Guidelines for NCWM Resolution of Requests for Recognition of Moisture Loss in Other Packaged Products
- 2.6.10. Model Guidelines for the Administrative Review Process
- 2.6.11. Good Quantity Control Practices
- 2.6.12. Point-of-Pack Inspection Guidelines

These documents are shown below in Reference Section I.

Another example of the type of package information which could be included in a publication or website for reference purposes is the following report on a meeting held at NIST in 2005 to address concerns over packer supplied tare values.

**NIST Weights and Measures Today**  
**November 2005**  
**Report of Meeting on Tare**

On November 2, 2005, the Laws and Metric Group at NIST hosted a meeting to discuss ways to improve the communication of tare information between packers and retailers when meat products are packaged at a plant, but weighed and labeled at the retail store. Representatives from the meat packing industry, the retail food industry, and several weights and measures agencies attended the meeting.

**The Problem**

There is a fundamental change occurring in the retail food marketplace. Retail food stores are shifting from having in-store meat cutters to purchasing already-packaged meat from an outside plant. The supplying plant provides the retail store with packaged meat (including tray, soakers, and overwrap), and the store is then responsible for weighing and labeling the package. In order to weigh and label these products properly, the retail store needs to know the weight of the packaging materials used by the plant (i.e., the tare weight). While this may sound simple and straightforward, it is not.

**Retailers**

Many retail food chains manage their tare weights from a central location. Tares are maintained at the central or regional office and downloaded to the individual stores on a routine basis. While individual stores may have the ability to override the tare provided in a download (e.g., when an official from weights and measures informs them that they are using an incorrect tare), this correction will be erased when the next download occurs. Several retail food chains believe that the centralized management of tare information is critical to the overall success of their meat departments. With little cutting and packaging being done at the retail level, stores rarely have experienced, professional staff in their meat departments. Without significant expertise at the store level, food retailers are reluctant to leave decisions regarding the use and amount of tare to individual store management.

**Weights and Measures Officials**

When weights and measures officials find inaccuracies in tares being used, often these inaccuracies are not being communicated to the food retailer's central or regional offices. If the food retailer's central or regional office is not informed that a tare value is inaccurate, then the tare value will not get changed in the next download. While some retail food chains require their store managers to submit copies of inspection reports to the central or regional office, many do not. Some chains leave that decision to the discretion of the individual store managers. Individual store managers may be reluctant to forward disparaging information about their store's performance to the central or regional office. As a result, when weights and measures officials find an inaccurate tare being used in a store and only notify store management of the correction necessary, that information may not be communicated to the people who really need to know—the people at the central or regional office who set the tare values for the entire chain of stores.

**Packers**

The weight of tare materials used at a meat packing plant varies regularly. Whenever the plant changes suppliers, whether it is suppliers providing soakers, trays, or overwrap, the tare must be reevaluated and changed. Whenever suppliers change the materials used in their products, the tare must be reevaluated and changed. Most meat packers monitor tare continuously and regularly make small adjustments to ensure their packages are accurate. While tare information is routinely shared with retailers, it is difficult to ensure that the correct tare goes on the correct package. Packers may ship individual packages from several different production lots (lots which may have

been packaged using different tare materials) in a single shipment to a retailer's warehouse. The retailer's warehouse then further breaks up these package groups to distribute packages to individual stores. Even if accurate tare information for all packages is provided to the retailer's central or regional office, the retailer has difficulty using this information effectively since not all packages of the same product at the same location will necessarily have the same tare. In addition, new tare information provided to a retailer may only apply to packages still in the retailer's warehouse (and not those presently in the store). This means retailers must coordinate the updating of tare data with the placement of new packages on the store shelves.

### **Is There a Solution?**

The question remains: How do you effectively ensure that the tare information for a particular package "travels" with the package from the point of production to the final retail destination? One suggestion has been to print tare information directly on individual packages. However, packers and retailers all agree that printing tare information on packages, shipping cases, or shipping invoice forms would not be effective. Packers order packaging materials and shipping containers months in advance and at that point could only guess as to what amount of tare would need to be preprinted on these materials. In addition, if tare information were provided on individual packages, shipping cases, or shipping invoices, that information would only be available at the retail store and would never reach the retailer's central or regional office in time to be included in the next download. Most retail food chains do not want individual stores making independent decisions about what tares to use.

Ultimately, the key will be for packers and retailers to communicate more frequently and more effectively. To that end, the American Meat Institute (AMI) has agreed to contact other trade associations representing the retail and meat packing industries to ask for their help in reiterating to their members the importance of accurate net weight labeling at retail. AMI will encourage their packer and processor members to communicate tare values to retail customers whenever changes in tare values occur.

### **How Can Weights and Measures Officials Help?**

Weights and measures agencies can help by sending copies of test reports (especially from failed inspections) to the corporate or regional office of the retailer. While ideally the corporate or regional office will receive this information from the retail store, retailers at this meeting stressed they would rather receive duplicate reports (from the weights and measures agency and the store) than none at all. Retailers consider it absolutely critical that weights and measures officials contact, communicate, and work with the corporate and regional offices early and often. Retailers specifically asked that weights and measures agencies not wait for problems to escalate before they get the corporate or regional offices involved. Weights and measures officials should conduct package inspections in full compliance with NIST Handbook 133. Inspectors are encouraged to properly clean tare materials during inspections to avoid imposing tares larger than they should be.

According to Handbook 133, Used Dry Tare is "tare material that has been air dried, or dried in some manner to simulate the unused tare weight." Before adding this definition to Handbook 133, members of the NCWM and NIST did extensive testing to compare the weights of Unused Dry Tare (which the packer uses), and Used Dry Tare (which the inspector uses). If Used Dry Tare is dried and cleaned properly, its weight should not vary significantly from the Unused Dry Tare weight. In addition, NIST strongly discourages the use of microwave ovens when drying tare materials, particularly soaker pads. Past tests have shown that excessive heating of soaker pads and other tare materials can significantly alter their weight, and even start a fire as some officials have learned.

## **REFERENCE SECTION I – EXCERPTS FROM THE INTERPRETATIONS AND GUIDELINES SECTION OF NIST HANDBOOK 130**

**The following are currently in NIST Handbook 130 Interpretations and Guidelines**

### **2.2.5. Lot, Shipment, or Delivery**

(L&R, 1981, p. 95)

#### **Policy**

The requirements for the average package net contents to meet or exceed the labeled declaration may be applied to production lots, shipments, or deliveries. Shipments or deliveries are smaller collections of packages than production lots that may or may not consist of mixed lot codes.

Emphasis in inspection activities should be placed on warehouse and in-plant testing without neglecting retail consumer protection.

#### **Background**

The Committee heard a petition from the California Brewers Association to define a lot as:

"a selection of containers under one roof produced by a single company of the same size, type and style, manufactured or packed under similar conditions with a minimum number to be equivalent to one production line shift."

The intention of the petition is to focus Weights and Measures enforcement on production lots as opposed to small collections of packages on retail shelves, because the production lot is under the control of the packager.

An alternative proposal was made that would require mingling of lot and date codes in package inspection at warehouse locations.

The Committee has reviewed the proposals in light of § 7.6. and § 12.1. of the Uniform Packaging and Labeling Regulation which refers to "shipment, delivery, or lot." If the petition is approved, the terms "shipment" and "delivery" would have to be dropped from this Uniform Regulation.

The Committee recognizes the inherent value of in-plant and warehouse inspection and is of the opinion that, wherever possible, such inspections should be carried out. At the same time, the Committee recognizes the need for the state and local weights and measures officials to protect the consumer at the level where the ultimate sale is made. Therefore, the Committee recommends no change to the Uniform Regulation.

The Committee looks forward to the work of the Special Study Group on Enforcement Uniformity of the NCWM which will be exploring the mechanisms that might be instituted to make in-plant inspection workable.

### **2.5.6. Guidelines for NCWM Resolution of Requests for Recognition of Moisture Loss in Other Packaged Products**

(Exec, 1988, p. 94)

The Task Force on Commodity Requirements limited its work to only a few product categories, using these categories as models for addressing moisture loss. The gray-area concept is the result of this work.

Recognizing several candidates for future work in moisture loss, the Task Force recommends that the following guidelines for moisture loss be followed as far as possible by any industry requesting consideration:

1. There should be reasonable uniformity in the moisture content of the product category. For example, since pet food has final moisture contents ranging from very moist to very dry, some subcategorization of pet food needs to be defined by industry before the NCWM study of the issue.

2. The predominant type of moisture loss (whether into the atmosphere or into the packaging materials) must be specified.
3. Different types of packaging might make it necessary to subcategorize the product. For example, pasta is packaged in cardboard, in polyethylene, or other packaging more impervious to moisture loss. The industry should define the domain of packaging materials to be considered.
4. "Real-world" data is needed on the product as found in the retail marketing chain—not just laboratory moisture-loss data.
5. The industry requesting consideration of moisture loss for its product should collect data on an industry-wide basis (rather than from only one or two companies).

Information concerning the relative fractions of imported and domestically produced product should be available, for example, in order to assess the feasibility of interacting with the manufacturer on specific problem lots.

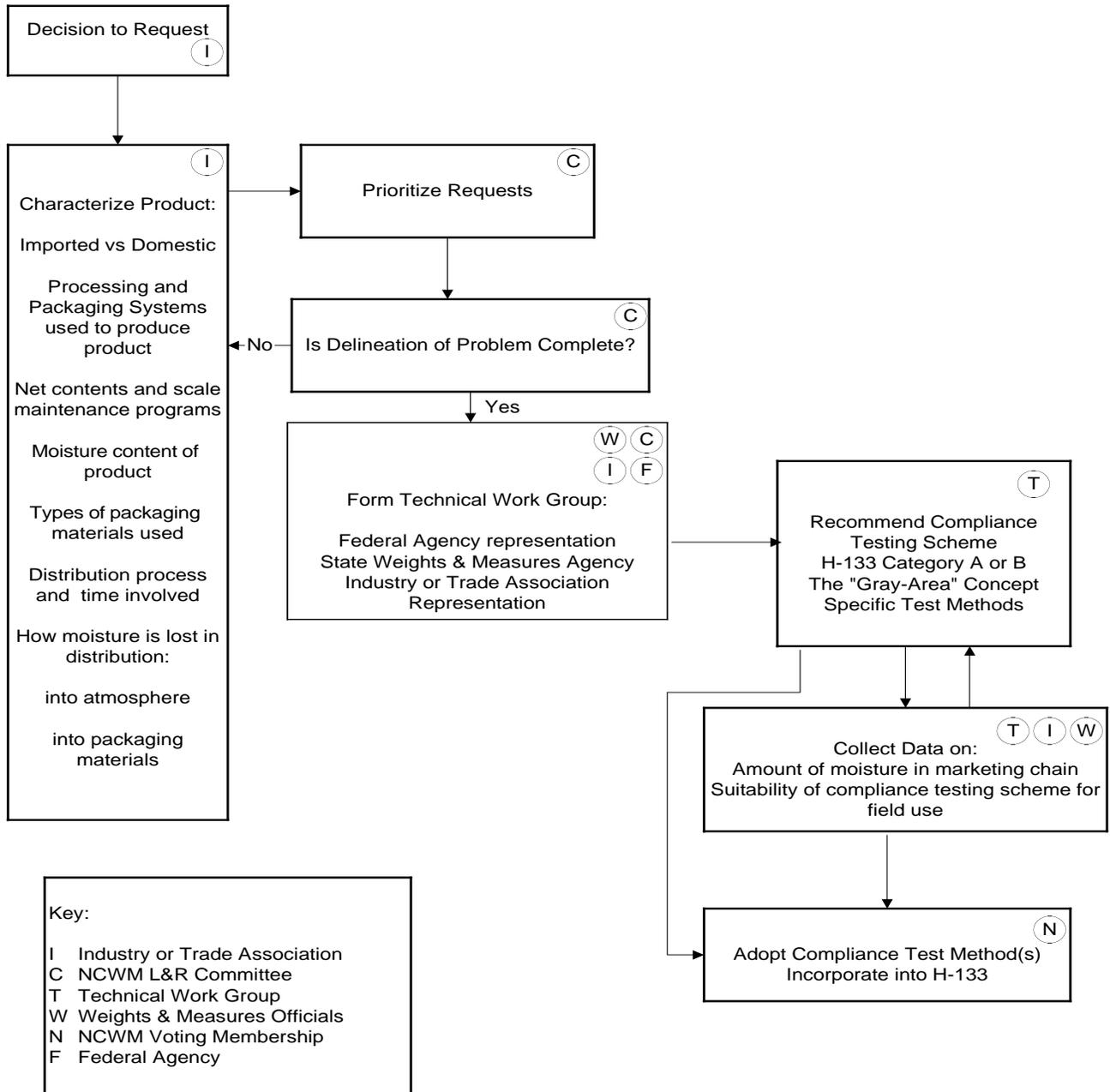
6. Moisture loss may occur either:
  - during manufacturing or
  - during distribution.

Data will be needed to show the relative proportion of moisture loss in these different locations since moisture loss is permitted only under good distribution practices. Geographical and seasonal variations may apply.

7. A description of the processing and packaging methods in use in the industry will be of great value, as will a description of the distribution system and time for manufacturing and distribution. A description of the existing net quantity control programs in place should be given, together with information on how compliance with Handbook 133 is obtained. A description of maintenance and inspection procedures for the scales should be provided, together with information on suitability of equipment and other measurements under Handbook 44.
8. A description of federal and local agency jurisdiction and test should be given, as well as any regulatory history with respect to moisture loss and short weight. Has weights and measures enforcement generated the request? What efforts have addressed the moisture loss issue prior to approaching the NCWM? Are the appropriate federal agencies aware of the industry's request to the NCWM?
9. The industry should propose the type of compliance system and/or moisture determination methodology to be used. The compliance scheme, if it contains industry data components, should be susceptible to verification (examples: USDA net weight tests for meat; exchange of samples with millers for flour) and should state what the companies will do to provide data to field inspection agencies in an ongoing fashion (as the gray-area approach requires). If in-plant testing is to be combined with field testing, who is to do such testing, and how is this to be accomplished? It should be possible to incorporate the proposed testing scheme into Handbook 133 to be used with Category A or B sampling plans.

When all the preliminary information recommended above has been collected, a field test of the proposed compliance scheme should be conducted by weights and measures enforcement officials to prove its viability. See the plan diagrammed on the next page.

### Plan For NCWM Resolution of Individual Requests For Recognition of Moisture Loss



## **2.6.10. Model Guidelines for the Administrative Review Process**

### **Purpose**

These guidelines are provided to assist weights and measures programs in establishing an administrative review process. They are not intended to be the only process an agency may use nor are they intended to supersede any agency's existing process. Before implementing ANY process, it should be approved by legal counsel.

These guidelines ensure that persons affected by "inspection findings" (e.g., price misrepresentations or shortweight packages), or who are deprived of the use of their property (devices or packages placed under "stop" or "off-sale" order), are provided a timely-independent review of the action. The process enables affected persons to provide evidence which could be relevant in determining whether the enforcement action was proper. The purpose of the process is to ensure that a person's ability to conduct business is not hindered by improper enforcement actions. This process is independent of any other action (e.g., administrative penalties, prosecutions, etc.) that may be taken by the enforcement agency.

### **Background**

In the course of their work, weights and measures officials take enforcement actions that may prohibit the use of devices or the sale of packaged goods (e.g., "stop-sale" or "off-sale" orders for packages and "stop-use" or "condemnation" tags issued on devices). Improper actions (e.g., not following prescribed test procedures, enforcing labeling requirements on exempted packages, or incorrectly citing someone for a "violation") place the official and the jurisdiction in the position of being liable for the action if it is found that the action was "illegal." In some cases, weights and measures jurisdictions could be ordered to pay monetary damages to compensate the affected party for the improper action.

This process is one way to provide affected persons an opportunity to present evidence which may be relevant in determining whether the order or finding has been properly made to an independent party. The procedure enables business operators to obtain an independent review of orders or findings so that actions affecting their business can be evaluated administratively instead of through litigation. This ensures timely review, which is essential because of the impact that such actions may have on the ability of a business to operate and in cases where perishable products may be lost.

### **Review Provisions**

Parties affected by enforcement actions must be given the opportunity to appeal enforcement actions.

Inspectors are the primary contacts with regulated firms and thus are in the best position to ensure that the enforcement actions they take are "proper." "Proper" means that inspections are conducted (1) within the scope of the authority granted by law, (2) according to recognized investigative or testing procedures and standards, and (3) that enforcement actions are lawful. The "burden" for proving that actions are "proper" falls on the weights and measures program, not on regulated firms.

Weights and measures officials are law enforcement officers. Therefore, they have the responsibility to exercise their authority within the "due process" provisions of the U.S. Constitution. As weights and measure programs carry-out their enforcement responsibilities in the future, more and more challenges to their actions and authority will occur. It is in the best interest of any program to establish strict operational procedures and standards of conduct to prevent the occurrence of improper actions which may place the jurisdiction in an untenable position in a court challenge of an enforcement action. The foundation for ensuring "proper" actions is training, clear and concise requirements, and adoption of, and adherence to uniform test procedures and legal procedures.

Prior to taking enforcement actions, the inspector should recheck test results and determine that the information on which the action will be taken is accurate.

Inspections shall be conducted with the understanding that the findings will be clearly and plainly documented and reviewed with the store's representative.

During the review of the findings, the firm's representative may provide information which must be used by the inspector to resolve the problems and concerns before enforcement actions are taken. In some cases, the provided

information may not persuade the inspector to forego the action. In some cases the inspector and business representative may not understand the circumstances surrounding the violations, or there may be a conflict between the parties that they cannot resolve. In other cases, the owner or manufacturer may not learn that an enforcement action has occurred until long after the inspector leaves the establishment.

Steps:

1. Provide a framework that will help in resolving most of these situations where "due process" is of concern. Make sure that the responsible party (e.g., as declared on the package label) is notified of violations and receives copies of inspection reports. Establish standard operating procedures to assure the affected party of timely access to a representative of the weights and measures program so that the firm can provide the relevant information or obtain clarification of legal requirements.
2. Make the process as simple and convenient as possible. Especially in distant or rural areas where there are no local offices, the review should be conducted by a supervisor of the official taking the action if agreed to by the person filing the request for review.
3. The process should include notice that the firm can seek review at a higher level in the weights and measures program or an independent review by a third party. The following procedures are recommended:
  - (a) Any owner, distributor, packager, or retailer of a device ordered out of service, or item or commodity ordered "off-sale," or inspection finding (e.g., a price misrepresentation or a shortweight lot of packages) shall be entitled to a timely review of such order, to a prompt, impartial, administrative review of such off-sale order or finding.

A notice of the right to administrative review should be included on all orders or reports of findings or violations and should be communicated to the responsible firm (e.g., person or firm identified on the product label):

- (b) The administrative review shall be conducted by an independent party designated by the Director or before an independent hearing officer appointed by the Department. The officer shall not be a person responsible for weights and measures administration or enforcement.
- (c) No fees should be imposed for the administrative review process.

#### Sample Notice

You have the right to Administrative Review of this order or finding. To obtain a review, contact the Director of Weights and Measures by telephone or send a written request (either postmarked, faxed, or hand delivered) to:

(Name, Address or Fax Number of the Director or other Designated Official)

Your request should reference any information that you believe supports the withdrawal or modification of the order or finding.

- (d) The firm responsible for the product or the retailer may introduce any record or other relevant evidence.

For example:

- (i) Commodities subject to the off-sale action or other findings were produced, processed, packaged, priced, or labeled in accordance with applicable laws, regulations or requirements.
  - (ii) Devices subject to the "stop-use" order or "condemnation" were maintained in accordance with applicable laws, regulations or requirements.
  - (iii) Prescribed test procedures or sampling plans were not followed by the inspector.
  - (iv) Mitigating circumstances existed which should be considered.
- (e) The reviewer must consider the inspector's report, findings, and actions as well as any evidence introduced by the owner, distributor, packager, or retailer as part of the review process.
  - (f) The reviewer must provide a timely written recommendation following review unless additional time is agreed to by the department and the petitioner.
  - (g) The reviewer may recommend to the Department that an order be upheld, withdrawn or modified. If justified the reviewer may recommend other action including a reinspection of the device or commodity based upon information presented during the review.
  - (h) All actions should be documented and all parties advised in writing of the results of the review. The report of action should be detailed in that it provides the reasons for the decision.

#### **2.6.11. Good Quantity Control Practices**

Good Quantity Control Practices means that the plant managers should take all reasonable precautions to ensure the following quantity control standards or their equivalent are met:

1. A formal quantity control function is in place with authority to review production processes and records, investigate possible errors, and approve, control, or reject lots.
2. Adequate facilities (e.g., equipment, standards and work areas) for conducting quantity control functions are provided and maintained.
3. A quantity control program (e.g., a system of statistical process control) is in place and maintained.
4. Sampling is conducted at a frequency appropriate to the product process to ensure that the data obtained is representative of the production lot.
5. Production records are maintained to provide a history of the filling and net content labeling of the product.
6. Each "production lot" contains on the average the labeled quantity and the number of packages exceeding the specified maximum allowable variation (MAV) value in the inspection sample shall be no more than permitted in Tables 2-1 and 2-2 in NIST Handbook 133.
7. Packaging practices are appropriate for specific products and measurement procedures (e.g., quantity sampling, density and tare determinations) and guidelines for recording and maintaining test results are documented.
8. Personnel responsible for quantity control follow written work instructions and are competent to perform their duties (e.g., background, education, experience and training). Training is conducted at sufficient intervals to ensure good practices.

9. Recognized procedures are used for the selection, maintenance, adjustment, and testing of filling equipment to insure proper fill control.
10. Weighing and measuring devices are suitable for their intended purpose, and measurement standards are suitable and traceable to national standards. This includes a system of equipment maintenance and calibration to include recordkeeping procedures.
11. Controls over automated data systems and software used in quantity control ensure that information is accessible, but changeable only by authorized personnel.
12. Tare materials are monitored for variation. Label changes are controlled to ensure net quantity matches labeled declaration.

#### **2.6.12. Point-of-Pack Inspection Guidelines**

##### **A. Weights and Measures Officials' Responsibilities**

1. Conduct inspections during hours when the plant is normally open for business. Open the inspection by making contact with the plant manager or authorized representative (e.g., the quality assurance manager or the production manager).
2. Present the proper credentials and explain the reason for the visit (e.g., routine or follow-up inspection or consumer complaint, etc.).
3. Request access to quantity measurement equipment in the packing room, moisture testing equipment in the laboratory or in the packing room, and product packed on premise or stored in warehouse areas.
4. Obtain permission from a plant representative prior to using a tape recorder or a camera.
5. Conduct inspection-related activities in a professional and appropriate manner and, if possible, work in an area that will not interfere with normal activities of the establishment.
6. Abide by all the safety and sanitary requirements of the establishment and clean the work area upon completion of the inspection/test. Return borrowed equipment and materials.
7. To close the inspection, recheck inspection reports in detail and ascertain that all information is complete and correct.
8. Sample questions and tasks for Inspectors:
  - a. Inside Buildings and Equipment:**
    - (i) Is all filling and associated equipment in good repair?
    - (ii) Are net content measurement devices suitable for the purpose being used?
    - (iii) Are standards used by the firm to verify device accuracy traceable to NIST?
  - b. Packing Room Inspection:**
    - (i) Observe if the program for net quantity of content control in the packing room is actually being carried out.
    - (ii) Ensure that the weighing systems are suitable and tare determination procedures are adequate. If there are questions regarding tare determination, weigh a representative number of tare and/or filled packages.

- (iii) For products labeled and filled by volume and then checked by weight, ensure that proper density is used.

**c. Warehouse Inspection:**

If an inspection is conducted:

- (i) Select lot(s) to be evaluated.
  - (ii) Determine the number of samples to be inspected. Use the appropriate sampling plan as described in NIST Handbook 133.
  - (iii) Randomly select the number of samples or use a mutually agreed on plan for selecting the samples.
  - (iv) Determine the average net quantity of the sample and use the standard deviation factor to compute the Sample Error Limit (SEL) to evaluate the lot.
  - (v) Look for individual values that exceed the applicable Maximum Allowable Variation as found in NIST Handbook 133.
  - (vi) Apply moisture allowances, if applicable.
  - (vii) Review the general condition of the warehouse relevant to package integrity, good quantity control, and distribution practices.
  - (viii) Prepare an inspection report to detail findings and actions.
9. Close the inspection – Review findings with Plant Representative.

After the inspection, meet with the management representative to discuss inspection findings and observations. Provide additional information as needed (e.g., information on laws and regulations or explanations of test procedures used in the inspection). Be informative, courteous and responsive. If problems/violations are found during the inspection/test, bring them to the attention of the appropriate person.

**B. Plant Management Responsibilities**

1. Recognize that inspectors are enforcing a federal, state or local law.
2. Assist the official in conducting inspection activities in a timely and efficient manner.
3. During the initial conference with the inspector, find out whether the inspection is routine, a follow-up, or the result of a consumer complaint. If a complaint, obtain as much information as possible concerning the nature of the complaint, allowing for an appropriate response.
4. The plant manager, quality assurance manager, or any designated representative should accompany the inspector.
5. Plant personnel should take note of the inspector's comments during the inspection and prepare a detailed write-up as soon as the inspection is completed.
6. When an official presents an inspection report, discuss the observations and, if possible, provide explanations for any changes deemed necessary as a result of the inspection/test.

**Plant Management: information that must be shared with the inspector.**

1. Establishment name and address.
2. Type of firm and information on related firms or applicable information (e.g., sub-contractor, servant or agent).
3. General description and location of shipping and storage areas where packaged goods intended for distribution are stored.
4. Commodities manufactured by or stored at the facility.
5. Names of responsible plant officials.

**Plant Management: information that may be shared with the inspector.**

1. Simple flow sheet of the filling process with appropriate net content control checkpoints.
2. Weighing or measuring device maintenance and calibration test records.
3. Type of quantity control tests and methods used.
4. Net content control charts for any lot, shipment, or delivery in question or lots which have previously been cited.
5. Method of date coding the product to include code interpretation.
6. Laboratory reports showing the moisture analysis of the products which are in question or have been previously cited.
7. Product volume of lot sizes or related information.
8. Distribution records related to any problem lots including names of customers.

## REFERENCE SECTION II – OTHER MOISTURE LOSS GUIDANCE AND RELATED DOCUMENTS

This section contains the text from a WMD Memorandum to state Weights and Measures Directors and other interested parties and a letter from Kraft General Foods stating the reasons justifying a withdrawal of the WMD memorandum.

### A. Text from the WMD Memorandum that was Issued on January 1, 2006

#### Memorandum for State Weights and Measures Directors and Other Interested Parties

Subject: Verifying the Net Contents of Packaged Goods and Recommended Procedures for Moisture Allowances

This memo supersedes the April 3, 1995, memorandum from the Weights and Measures Division (WMD) concerning the impact of the Nutrition Labeling and Education Act of 1990 (NLEA) on net content testing by State and local weights and measures officials.

I am revising the earlier correspondence primarily in response to the National Conference on Weights and Measures' (NCWM) adoption of the 4<sup>th</sup> edition (January 2005) of the National Institute of Standards and Technology's Handbook 133 "Checking the Net Contents of Packaged Goods" (Handbook 133). Recent inquiries from State officials on the status of package inspection programs that test products subject to Food and Drug Administration (FDA) jurisdiction have further prompted a response. This memorandum describes guidance provided by FDA. Since 1985 that agency has advised NIST that Handbook 133 has not been in conflict with that agency's practices enforcing net quantity of content on packaged foods.

#### I. Recommendations for Verifying the Net Quantity of Contents of Packages Subject to FDA Jurisdiction

WMD recommends that weights and measures officials use the 4<sup>th</sup> edition of Handbook 133 (January 2005) for all products except those subject to regulation by the U.S. Department of Agriculture (USDA), which has adopted the 3<sup>rd</sup> edition of Handbook 133 and its 4<sup>th</sup> Supplement.<sup>38</sup> NIST recently learned that the USDA may adopt the 2005 edition of Handbook 133 in the near future. These publications are available on the Internet.<sup>39</sup>

The Category A Sampling Plans in Handbook 133 provide a statistically valid sampling scheme and sample correction factors to enable you to determine if a sample passes or fails a test with a confidence level of at least 97 %. The test methods prescribed for foods are consistent with those used by the FDA.<sup>40</sup>

Weights and measures officials must apply both the "average" and "individual package" requirements in Handbook 133 to the packages they inspect because Federal and State laws and regulations relating to net quantity of content require officials to allow reasonable variations (both plus and minus errors in net contents) from the labeled net contents. By applying both requirements, officials avoid the appearance

<sup>38</sup> See 9CFR317.19 and 9CFR381.121b for the applicable meat and poultry regulations.

<sup>39</sup> The 3<sup>rd</sup> Edition and 4<sup>th</sup> Supplement required by USDA and the January 2005 4<sup>th</sup> Edition of Handbook 133 are free at <http://ts.nist.gov/ts/htdocs/230/235/h1334-05.htm> on the Internet.

<sup>40</sup> Historically, the FDA has used enforcement procedures based on a 95 % confidence level that findings of underfill are accurate. The Category A Sampling Plans in the 4<sup>th</sup> edition of Handbook 133 are based on an approximate 97 % confidence level that the findings are accurate; therefore, these plans should be acceptable to use in testing packages under FDA jurisdiction.

they are imposing a “minimum” net content system<sup>41</sup> while providing a high level of protection for consumers and ensuring fair competition in the marketplace.

Weights and Measures Officials should continue to test packages at retail and should consider Section 1.1. of Handbook 133 before taking enforcement action on small inspection lots of package:

Testing packages at retail outlets evaluates the soundness of the manufacturing, distributing, and retailing processes of the widest variety of goods at a single location. It is an easily accessible, practical means for State, county and city jurisdictions to monitor packaging procedures and to detect present or potential problems. Generally, retail package testing is not conducive to checking large quantities of individual products of any single production lot. Therefore, follow-up inspections of a particular brand or lot code number at a number of retail and wholesale outlets, and ultimately at the point-of-pack are extremely important aspects in any package-checking scheme. After the evaluation of an inspection lot is completed, the jurisdiction should consider what, if any, further investigation or follow-up is warranted. At the point-of-sale, a large number of processes may affect the quality or quantity of the product. Therefore, there may be many reasons for any inspection lot being out of compliance. A shortage in weight or measure may result from mishandling the product in the store, or the retailer’s failure to rotate stock. Shortages may also be caused through mishandling by a distributor, or failure of some part of the packaging process. Shortages may also be caused by moisture loss (desiccation) if the product is packaged in permeable media. Therefore, being able to determine the cause of an error in order to correct defects is more difficult when retail testing is used.

It is important to realize that the Category A Sampling Plans in Handbook 133, while statistically valid, may fail lots that contain the labeled net quantity of content approximately three times out of 100 tests. By basing enforcement actions on samples from multiple lots of the same product from the same manufacturer tested at different locations, you will have a better indication of whether or not an enforcement action is necessary. When a lot fails an inspection, NIST recommends you contact the manufacturer to obtain quantity control records and other production information on the lot to assist in your decision process. To ensure due process, we encourage jurisdictions to follow the NCWM’s Section 2.6.10. Model Guidelines for the Administrative Review Process in NIST Handbook 130 “Uniform Laws and Regulations in the area of legal metrology...” (Those guidelines are shown below this memorandum) for reference but, your agency’s general counsel may of course have you follow other procedures. When following up on possible violations with manufacturers, recognize they are required under Federal and State laws or regulations to follow current good manufacturing practices. The NCWM has also adopted guidelines in Section 2.6.11. on “Good Quantity Control Practices” that officials can use as a tool to assess quantity control systems. (These are provided below).

Weights and Measures officials should conduct inspections at the point of pack whenever possible so they will have access to larger lots of packages and can also assess the packager’s entire packaging system. The NCWM adopted guidelines in Section 2.6.12. on “point-of-pack inspections” to help officials conduct these inspections, (See below this memorandum).

We encourage jurisdictions to collaborate on conducting marketplace surveys to determine the level of compliance of commodity groups (e.g., store-packed random weight items, mulch, polyethylene sheeting, flour, milk, soft drinks, animal food, etc.) and to work together to follow up on possible problems at the point-of-pack where the packaging plant or distribution point is located in a jurisdiction other than where the packages failed to pass a test. The State of California conducts a wide variety of marketplace surveys which can serve as model for other states to follow. NIST encourages all states to follow the example set by California’s Division of Measurement Standards for monitoring compliance in the all areas of weights

<sup>41</sup> Under a “minimum” net content system (these systems are common in European countries), no package in a sample may contain less than the net quantity of contents stated on the package label.

and measures enforcement. NIST will provide assist to states who want to conduct or collaborate in surveys...

Ensure that all samples are selected randomly. The statistical reliability of the sampling plans is valid only when the sample has been randomly selected from the inspection lot.

To be consistent with FDA inspection activities, utilize used dry tare when taking enforcement actions. The Handbook permits unused dry tare to be used to conduct audits and to verify net weights of packages put up in retail stores.

Apply the average and individual package requirements to products tested at any point in distribution. Over the last ten years several jurisdictions have contacted WMD concerning industry claims that States can only take action on production lots. FDA advises that there are no provisions in the Federal Food, Drug, and Cosmetic Act or its legislative history that support this claim. Another issue that WMD has been asked about is the claim that the FDA has a "1 %" tolerance that States must permit. FDA advises that they have a policy for their field compliance staff to use in determining whether or not to request enforcement actions by the U.S. Justice Department. The only purpose for the policy is for FDA to prioritize agency resources, not to set a limit for State enforcement actions. The FDA also reports that it did not establish this policy as a statistical allowance or tolerance that could be easily abused by an unscrupulous packager.

Allow for reasonable moisture loss.

The following Federal regulation preempts any State or local requirement that is not identical:

21 CFR § 101.105

(q) The declaration of net quantity of contents shall express an accurate statement of the quantity of contents of the package. Reasonable variations caused by loss or gain of moisture during the course of good distribution practice or by unavoidable deviations in good manufacturing practice will be recognized. Variations from stated quantity of contents shall not be unreasonably large.

State and local jurisdictions must allow reasonable variations in net contents caused by the loss or gain of moisture in food products that occurs during good distribution practice. If not, a jurisdiction may be questioned if enforcement action is taken against the product. The moisture loss issue has challenged weights and measures officials and industry since the Federal Food, Drug, and Cosmetic Act allowing for moisture loss was passed more than 75 years ago. However, the fact that FDA has not adopted specific moisture allowances is not justification for not making reasonable allowances for moisture loss.

The NCWM has adopted moisture allowances (also called "gray areas") for flour, dry pet food, chicken, and hot dogs. Under the "gray area" concept, any food found short in excess of the allowance is subject to enforcement action. If the product is found short, but within the allowance, the official would take additional steps (such as comparing the moisture content of a sample from the lot to the time-of-pack moisture content provided by the packer) to determine if the product is short because of underweighing at the time of pack, or if the shortage is due to "reasonable" moisture loss that occurred during distribution. WMD recommends that officials use the following guidelines with the "gray area" approach to allow reasonable moisture loss for the listed foods.

WMD only recommends moisture allowances. It is the individual jurisdiction's responsibility to make the final decision concerning appropriate moisture allowances. Final decisions should be made after considering moisture loss data provided by the packager.

## **II. Recommended Moisture Allowances for Some Foods**

WMD has consulted with State and local weights and measures agencies and affected industries on moisture loss problems associated with hygroscopic foods. The following moisture allowances, beyond those already

addressed by the NCWM, are recommended. WMD used data from the FDA's Quantity of Contents Compendium as the major source for the numerical values for gray area recommendations. Moisture loss has been identified with flour, pasta, rice, cheese and cheese products, dried fruits and vegetables, fresh and frozen fruits and vegetables, coffee beans, and bakery products. Of all of these commodities, the extent of moisture loss variations is greatest for flour and pasta. Very little current data are available for many other commodities. However, WMD considers the need for allowances for affected commodities to be pressing and believes that States must make some allowance for these commodities until other data can be obtained for the respective commodities. If a recommended allowance is perceived as too lenient, weights and measures agencies may prevent abuses of the allowance through inspections at the point of pack. Allowances if too lenient provide are a disadvantage for firms with products in competition with packers where point-of-pack inspections may not be possible; consequently, such firms may wish to provide information to WMD so that we can recommend a more stringent allowance. Where allowances are too stringent, firms may also provide information justifying a more appropriate allowance. WMD suggests that firms desiring such an allowance be encouraged to work closely with the NCWM in view of its experience in this area. Even though the process of developing moisture allowances is time-consuming, affected firms will be provided some relief during the interim period if State and local agencies implement the following recommendations:

### **III. Moisture Allowances at Point of Pack**

WMD recommends that moisture allowances at the point of pack not be made for packages taken immediately off the production line. However, regulatory officials may often encounter product at the point of pack that has been stored by the packer prior to shipment to other locations. In the past, moisture allowances have not been recognized in tests until the food is "introduced into interstate commerce;" however, since many manufacturers store the product for extended periods at the packing location, moisture loss should be recognized. It is recognized that moisture loss is a natural phenomenon that is not controlled or delayed by any specific schedule, and WMD recommends that, at some point during such storage, allowances be permitted for moisture loss. But, considering the multiplicity of foods, differences in packing materials, and the various environmental factors that affect moisture loss, it would be impossible for WMD to determine moisture loss that occurs on the packaging line or in the first few hours or days following the packaging of any one product type, let alone the tens of thousands of products that might be inspected at the point of pack. Certainly, some products begin to lose moisture immediately after packaging, but there must be some definitive guidance provided for weights and measures officials and industry.

This problem is not unique to the United States where we are trying to encourage State and local officials to focus more on point-of-pack inspections. WMD is aware that point-of-pack inspections are one of the primary tools used in European countries to control net contents in packaged goods. We have learned that in some of these countries officials make no allowance for moisture loss within the first 7 days of the date of pack for some products. As this is the only documented guidance on the issue available, WMD recommends that States consider a similar approach until other guidance on this issue is available. This will provide packers and officials with guidance on when moisture loss allowances must be applied and will enable officials to conduct inspections at point of pack to ensure that packers are not taking advantage of recognized allowances for moisture loss. To minimize the possibility of moisture loss considerations, officials should inspect the most recently packed items.

In 1995 WMD received comments on the 7-day recommendation from the Food Industry Weights and Measures Task Force (Task Force) of the Grocery Manufacturers of America. The Task Force was concerned the 7-day period was not reasonable because the data submitted to the NCWM to develop the gray areas for flour, dry pet food, and other products clearly showed that some products lose as much as 0.5 % to 1 % of their weight due to moisture loss in the first few days of packing. WMD acknowledged the industry's concerns about the 7-day period but believed then and now that the concerns can be addressed without dropping the recommendation. WMD believes it is crucial to have specific guidelines on moisture loss for use in point-of-pack inspections.

WMD recommends an exception to the 7-day period if the packer can provide daily moisture loss data collected using the following procedures. We have developed the following guidelines in collaboration with industry for packers to use the results of the short-term moisture loss studies at the point of pack. To be acceptable, the data

must be computed using the average moisture loss determined on a daily basis (e.g., the weight of each package in each of the sample control lots is determined everyday for 7-days) in environmental conditions similar to those that exist when the product is being inspected. For example, an inspector visits a pet food plant in Ohio in the middle of July to conduct a point-of-pack inspection. If the product tested had been packaged 5 days before the inspection and is found underweight; the moisture loss data must reflect the loss that would occur in July not January. At least three sample control lots, consisting of at least 48 randomly selected packages, must be used to develop the moisture loss data. Each sample lot must be stored under the same conditions that are typical for the product (e.g., if the product is typically placed in a sealed case on a pallet and shrink wrapped, the sample lots must be stored under the same conditions. Moisture loss data obtained by removing the individual packages from the shipping case and storing them in a laboratory would not be acceptable). The three-sample control lots must be placed at various locations in the storage site. The average moisture loss value must be computed from the three-sample control lots with a 95 % prediction interval.

Since point-of-pack inspections are not routinely done in most jurisdictions at this time, there will be many situations where packers may not have "acceptable" moisture loss data for a particular product found to be underweight at the time of a point-of-pack inspection. In these cases, WMD recommends the packer be allowed to conduct a study using the criteria specified above. This data could then be provided to the weights and measures official for use in making a final determination whether or not moisture loss caused the product to be underweight. One benefit of this approach is that the moisture loss study can be conducted within a few days of the inspector finding the inspection lot underweight so the test will more closely reflect the environmental conditions under which the original inspection lot was subject.

A similar recommendation is included for fresh bakery products weighed within 1 day following the end of the day of pack (in this case the moisture loss data would have to be based on the amount of moisture lost on an hourly basis under the same conditions listed above for the 7-day period). WMD will provide technical assistance on request to any jurisdiction to resolve these individual moisture loss cases by working with you and the packer and will seek FDA assistance in resolving these situations.

#### **IV. Recommended Moisture Allowances for Use at Point of Pack and Testing at Any Other Location**

Provide the following allowances for moisture loss (expressed as a percentage of the labeled net quantity of contents):

1. No allowance for moisture loss should be made if:
  - (a) A food, other than a fresh bakery product, while stored by the packer, is weighed within 7 days following the end of the day of pack, except when the packer provides acceptable (see note below) documentation of the moisture loss for the product in storage at the point-of-pack, or
  - (b) A fresh bakery product, while stored by the packer, is weighed within 1 day following the end of the day of pack, except when the packer provides acceptable (see note below) documentation of the moisture loss for the product in storage at the point of pack, or
  - (c) The food is not subject to moisture loss, or
  - (d) The food is packaged in an air-/moisture-tight container (e.g., cans, glass bottles, enclosed in paraffin, etc).
2. Allow 1 % for the following foods: frozen fruits and frozen vegetables, and fresh baked breads, buns, rolls and muffins.
3. Allow 3 % for the following foods: flour, dry pet food, pasta, rice, cheese and cheese products, dried fruits and vegetables, fresh fruits and vegetables, coffee beans, and bakery products other than fresh baked breads, buns, rolls and muffins.

Note for Moisture Allowances at Point of Pack: The data must be computed using the average moisture loss determined on a daily basis (e.g., the weight of each package in each of the sample control lots is determined everyday for 7 days) in environmental conditions similar to those that exist when the product is being inspected. For example, an inspector visits a pet food plant in Ohio in the middle of July to conduct a point-of-pack inspection. If the product tested had been packaged 5 days before the inspection and is found underweight; the moisture loss data must reflect the loss that would occur in July, not January. At least three sample control lots consisting of at least 48 randomly selected packages must be used to develop the moisture loss data. Each sample lot must be stored under the same conditions that are typical for the product (e.g., if the product is typically placed in a sealed case on a pallet and shrink wrapped, the sample lots must be stored under the same conditions. Moisture loss data obtained by removing the individual packages from the shipping case and storing them in a laboratory would not be acceptable). The three-sample control lots must be placed at various locations in the storage site. The average moisture loss value must be computed from the three-sample control lots with a 95 % prediction interval. If the packer does not provide the information, no additional moisture allowance should be permitted.

#### **V. Moisture Loss for Products Not Listed in NIST Handbook 133**

When officials test product for which no moisture loss guidance has been provided NIST can provide technical assistance. In the past NIST has published recommended moisture allowances for use at all locations including Point-of-Pack. If moisture loss studies are required NIST will assist in the completion of such studies. If studies are a necessity they should be a collaborative effort between officials and industry and can be very time consuming depending on the product. Because of the potential impact on interstate commerce, studies must be completed on a nationwide basis and not by individual jurisdictions unless circumstances justify only local consideration.

The amount of moisture lost from a package is a function of many factors not the least of which is the product itself (e.g., moisture content), packaging, storage conditions (e.g., temperature, humidity, air flow), time, handling and others. If a packaged product is subject to moisture loss officials must allow for “reasonable” variations caused by moisture either evaporating or draining from the product. Officials cannot set arbitrary moisture allowances based solely on their experience or intuition. Moisture allowances must be based on scientific data and must be “reasonable.” Reasonable does not mean that all of the weight loss caused by moisture evaporation or draining from the product must be allowed. As a result of product and moisture variability the approach used by official must be developed on a case-by-case basis depending on many factors to include, but not be limited to, the manufacturing process, packaging materials, distribution, environmental influence and the anticipated shelf life of the product.

NIST Handbook 130 provides a starting point for developing a workable procedure in Section 2.5.6. in the Interpretation and Guideline Section regarding “Resolution for Requests for Recognition of Moisture Loss in Other Packaged Products.” NIST WMD has worked and will continue to work extensively with the NCWM, The Laws and Regulations Committee, and industry to develop protocol for determining moisture allowances that can serve as models for future studies. Most studies involving nationally distributed products will require that products be tested during different seasons of the year and in different geographic locations to develop a nationally recognized moisture allowance. Some studies may require the development of laboratory tests used for inter-laboratory comparisons to establish moisture content in products at time-of-pack or at the time-of-inspection.

In some cases manufacturers can and may provide valid moisture loss data for officials to consider in lieu of conducting studies. In cases like this, WMD will provide assistance to determine if the information is complete or if further documentation is required. For example, a major producer of bar soap has provided moisture loss evidence for consideration by officials to determine what if any moisture loss could be expected to occur, in some cases this information has proven to be accurate thus avoiding the need for national data collection.

Moisture loss or gain is a critical consideration for any net content enforcement effort and one that, in most cases, cannot be addressed by a field official. If moisture loss issues are to be deliberated, it is the regulatory official’s responsibility to resolve the packers concern utilizing available resources and due process procedures.

To fulfill this obligation officials may be required to utilize specialized test equipment and specific laboratory procedures. Additionally, the collection of adequate test data may require product examination over a broad geographical area and consideration of a wide range of environmental factors. If a national effort is required a coordinated effort involving industry, trade associations, weights and measures officials and federal agencies may be required. NIST will provide technical support upon request.

## **VI. Background Information on Federal Preemption**

In the previous memorandum we reported that FDA was expected to adopt regulations identical to those contained in the 4<sup>th</sup> Supplement of the 3<sup>rd</sup> Edition of Handbook 133 adopted by the NCWM in 1994. The FDA published proposed regulations regarding net quantity of contents test procedures for packaged food under its jurisdiction in the March 4, 1997, issue (62 FR 9826) of the Federal Register. FDA subsequently withdrew that proposal on November 26, 2004 (69 FR 68831). FDA based the withdrawal on its need to reduce its regulatory backlog and focus its resources on current public health issues. The withdrawal did not speak to the merits of the proposal. Based on the experience reported since the adoption of the substantive revisions in 1994, WMD believes that the latest edition of Handbook 133 provides the basis for nationally uniform test methods and other requirements consistent with the requirements in Federal laws relating to net quantity of contents. Therefore, WMD recommends that State and local authorities test products according to the procedures outlined in the latest edition of Handbook 133 unless future FDA guidance or regulations specify otherwise. Moreover, it is extremely important that State and local jurisdictions continue to provide regulatory oversight so businesses can compete in a fair marketplace and consumers can depend on the representations of quantity upon which they make purchasing decisions.

### **a. Federal Preemption under the Nutrition Labeling and Education Act (NLEA) of 1990**

The NLEA was signed into law on November 8, 1990, to amend Title 21 Section 343 of the Federal Food, Drug, and Cosmetic Act (FDCA). The Act requires nutrition labeling on foods and regulates health claims about food nutrients to help consumers select a more healthful diet. Under the Act, State and local laws not "identical" to corresponding FDA requirements are preempted. According to regulations under FDA [21 CFR Part 100.1 (c)(4)], the phrase "not identical" does not refer to the specific words in the requirement. Instead it means that the State or local requirement directly or indirectly imposes obligations or contains provisions that (1) are not imposed by or contained in an FDA requirement, or (2) differ from those specifically imposed by or contained in an FDA requirement or implementing regulation.

The preemption ensures uniformity in labeling requirements and prohibits non-uniform State and local laws, regulations, formal and informal policies, and other enforcement practices that prevent firms from conducting efficient and cost-effective business in all 50 States. Congress recognized that even though federal requirements may preempt more restrictive state requirements in certain instances, the net benefits from national uniformity in these aspects of the food label outweigh any loss in consumer protection that may occur as a result.

The ultimate goal of the NLEA is uniformity in laws, regulations, and test procedures—a goal shared by the NCWM and NIST alike. Under NLEA, state and local labeling requirements must be identical to many of the regulations promulgated under the Federal Food, Drug and Cosmetic Act, as amended by the NLEA, in Title 21 - Code of Federal Regulations, Parts 100 to 169 (current edition). Jurisdictions may continue to enforce state or local regulations on foods where there is no federal requirement and continue to enforce existing state and local laws if they are "identical" to FDA regulations.

### **b. Defining what is "Identical"**

Federal preemption of the net quantity of contents regulations and test procedures occurred on November 8, 1991. On that date, state and local regulations on quantity of contents (e.g., net quantity of contents regulations, sampling plans, and test procedures) were preempted under the NLEA if they were not "identical" to federal requirements. The question is, what is "identical?" Both State and FDA regulations require packers to express an "accurate" statement of the quantity of contents of packaged food while permitting "reasonable" variations. The most common questions WMD receives are “do the test

procedures used by the states and FDA provide identical results” (e.g., do the sampling plans have equal confidence levels, and are the products weighed or measured using recognized procedures) and “are the criteria for defining reasonable variations (e.g., the values of maximum allowable variations, the sample correction factors, and allowances for moisture loss) consistent with those used by FDA?”

FDA's test procedures are based on those contained in "Official Methods of Analysis" of the Association of Official Analytical Chemists International (AOAC). Based on information provided by FDA, WMD believes the test procedures contained in the 4<sup>th</sup> edition of Handbook 133 are identical to the AOAC procedures. If officials implement the recommendations in this memo, they should be using test procedures equivalent to FDA's.

**c. Preemption Extends Beyond Food Packages Introduced into Interstate Commerce**

Federal courts have ruled that the FDA has jurisdiction over all food products made from ingredients shipped in interstate commerce, regardless of the amount of the ingredient present, even though the finished product has not moved in interstate commerce. Products that have not entered interstate commerce (e.g., bakery products offered for sale in the food store where they are baked and packaged) that are made of ingredients shipped in interstate commerce to the store are subject to the Food, Drug, and Cosmetic Act and, therefore, should only be tested according to the following recommendations in this memorandum until final regulations are adopted by the FDA.

This memorandum is not legal advice. I encourage you to review this memo with your State Attorney General or staff attorney before implementing any policy on these issues or before you take enforcement action against a product that falls under FDA or other federal jurisdiction.

**Training and Technical Support**

WMD is committed to supporting state and local jurisdictions in their package inspection programs by providing technical assistance and training classes on Handbook 133. If you need assistance, please contact Tom Coleman at (301) 875-4868 or by e-mail at [t.coleman@nist.gov](mailto:t.coleman@nist.gov).

**NOTICE**

The following documents could not be included in this publication because they are only available in Adobe PDF format. They are available from NIST upon request. Please contact Tom Coleman at 301-975-4859 or by e-mail at [t.coleman@nist.gov](mailto:t.coleman@nist.gov) or Lisa Warfield at 301-975-3308 or at [lisa.warfield@nist.gov](mailto:lisa.warfield@nist.gov) to obtain copies.

**B. Letter from Kraft Foods Requesting that NIST Withdraw Letter on Moisture Loss**

**C. Chapter 3 from the 3rd Edition of NIST Handbook 133 and 4th Supplement 1994**