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**PROTECT YOUR
ENVIRONMENT -
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Announcing a New Feature Column

Frequently Asked Questions – Technical Interpretations and Guidelines

The Weights and Measures Division (WMD) frequently receives and responds to questions regarding a variety of legal metrology issues such as:

- ♦ general weights and measures administration and enforcement issues,
- ♦ interpretations of NIST Handbook 44, device testing procedures, device-related technical policies,
- ♦ traceability of state weights and measures standards to NIST and laboratory metrologist training,
- ♦ training to the states, Federal agencies, packaging and labeling, and industry on the uniform weights and measures laws and regulations adopted by the NCWM,
- ♦ metric information, and
- ♦ harmonization of domestic and international standards towards providing U.S. industry with efficient access to international markets.

In responding to these questions, the WMD draws from the experience of its staff; input from other experts in the weights and measures community; and publications such as the National Conference on Weights and Measures (NCWM) Annual reports, WMD training courses, and NIST/NBS publications, including some out-of-print documents. WMD staff members always respond directly to the submitter of the question; however, some submitters have observed that others in the weights and measures community might also find these interpretations and guidelines useful and have suggested that we explore mechanisms to make this information more broadly available. Particularly since more complex questions may involve extensive time and research to develop a response, finding ways to share these interpretations would make better use of our resources. In response to these suggestions, WMD is introducing a new column in the *Weights and Measures Quarterly* newsletter as one means of disseminating the interpretations and guidelines more widely. This information will also be included in the *Weights and Measures Quarterly* newsletter archives on our web site at www.nist.gov/owm along with references to other past newsletter articles; however, we plan to explore ways to make it easier to search for information on a specific technical topic on our website, even if only in a conventional “Frequently Asked Question (FAQ)” format.

While WMD staff will continue to respond to direct questions as they always have in the past, if you have questions regarding the interpretation and application of NIST Handbooks or other Weights and Measures topics, we encourage you to submit your

question for possible inclusion in a future edition of the *Weights and Measures Quarterly*. Even if your question isn't used in the newsletter, we will be sure to provide you with a response.

Please submit your questions to owm@nist.gov and include "FAQ" in the subject line, and indicate the general area of your question as one of the following:

- ♦ Weights and Measures Administration
- ♦ Weighing and measuring devices
- ♦ Traceability and field standards, and metrologist training
- ♦ Packaging and labeling,
- ♦ Net content
- ♦ Price verification
- ♦ Uniform weights and measures laws & regulations
- ♦ Fuels and lubricants
- ♦ Metric
- ♦ International standards and activities
- ♦ Legal metrology training for field inspectors, service agents, and administrators.



Hydrogen, What's Next?

U.S. National Work Group (USNWG) for the Development of Commercial Hydrogen Measurement Standards

By Juana Williams

The USNWG Device Standards Subcommittee (DSS) and Fuel Specifications Subcommittee (FSS) met April 28 and 29, 2009, at the California Fuel Cell Partnership in West Sacramento, California. Information on USNWG projects and tentative changes to proposed legal metrology requirements for hydrogen refueling applications are covered in this article.

Device Standards Subcommittee (DSS)

The DSS met on the April 28 and 29 to discuss any remaining issues with Draft 4.0 of the NIST Handbook 44 (*Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices*), Hydrogen Gas Measuring Devices Code and corresponding equipment test procedures.

Test Procedures

The DSS agreed that there are benefits to developing a single test standard that allows for an evaluation of hydrogen refueling equipment to both SAE safety and weights and measures accuracy standards. Legal metrology requirements are designed to test the equipment's performance across the entire range of flow rates, typical delivery sizes, as well as worst case conditions that might develop under normal use. Simulation of

these operating conditions during the test will require the selection of test vessels/receptacles in sufficient numbers and appropriate sizes, ratings, etc. The DSS agreed to continue its discussions on the concept of a single test standard that has the ability to demonstrate the equipment's performance to SAE fill protocol guidelines and legal metrology requirements.

The uncertainty analysis for gravimetric and volumetric test methods is nearing completion. The next step will be to determine the uncertainties associated with the master meter test method. This information will be important in providing guidelines on the selection of an appropriate test method, given that the combined error and uncertainty of the test standard must be less than one-third of the applicable performance tolerance when the standard is used without correction.

Device Requirements

The focus of the April meeting was to eliminate any gaps in Draft 4.0 of the NIST Handbook 44, Hydrogen Gas Measuring Devices Code, thus avoiding delays in the code's review and subsequent approval during the 2010 cycle for the weights and measures standards development process. The preliminary outcome of DSS discussions is as follows:

- ♦ Provide real world examples of commercial stationary and mobile refueling systems to clarify that the code applies to both applications.
- ♦ Schedule a June 17, 2009, (3:00 p.m. to 5:00 p.m. EST) Tele/Web conference to ensure the draft code fully addresses both wholesale and retail applications.
- ♦ Contact other national and international legal metrology organizations, laboratories, etc., most likely to have sufficient test data that demonstrates:
 - the availability of a suitable test standard(s) for evaluating a hydrogen refueling system's performance
 - the ability of hydrogen refueling systems to attain the proposed tolerances in the draft code.
- ♦ Modify paragraph S.1.3.3. Maximum Value of Quantity-Value Divisions to specify that the maximum allowable value of the quantity-value division is 0.001 kg, rather than a fixed percentage of the minimum measured quantity.

Fuel Specifications Subcommittee (FSS)

The April meeting resulted in several modifications to the discussion paper "The Starting Point: A Discussion Paper Describing a Proposed Method of Sale and Quality Specification for Hydrogen Vehicle Fuel" and Draft 2.3 of the NIST Handbook 130, Method of Sale and Fuel Quality requirements for hydrogen. These modifications were made to ensure the draft code harmonizes, wherever possible, with the latest recommendations in corresponding standards/reports developed by related technical work groups.

Fuel Quality Specifications

Modifications will be made to the discussion paper and draft

code to clearly identify each targeted constituent/contaminant and for consistency with the February 2009 recommendations of SAE J2719 as follows:

- ♦ Identify properties where there is tentative agreement on the ability of current technology to test for the permissible limits proposed in the code
- ♦ Update the measurement unit for the permissible level of particulate concentration
- ♦ Update the terminology to clarify the properties of the nonparticulate constituents, the appropriate measurement unit for their analysis, and the maximum allowable level for these constituents.

Method of Sale Requirements

Modifications will be made to the discussion paper and draft code to clarify:

- ♦ Acceptable abbreviations/symbols for use to identify the fuel “Hydrogen”
- ♦ Appropriate expressions of the service pressure in SI units for dispenser labeling and street price sign advertisements.

The FSS also agreed to modify the proposed NIST Handbook 130 definitions for “fuel cell,” “hydrogen fuel,” and “internal combustion engine” to read as follows:

1.XX. Fuel Cell. - an electrochemical energy conversion device in which fuel and an oxidant react to generate energy without consumption of its electrodes or electrolyte.

1.XX. Hydrogen Fuel. - a fuel composed of the chemical hydrogen intended for consumption in a surface vehicle with an internal combustion engine or fuel cell.

1.XX. Internal Combustion Engine. - a device used to generate power by converting chemical energy bound in the fuel into mechanical work to power a vehicle.

Next Meeting

The USNWG will hold its next in-person meeting August 11-13, 2009, on the NIST Gaithersburg, Maryland, campus. Tentative plans are to hold the FSS meeting from 1:00 p.m. to 5:00 p.m. EST on August 11 and then hold the DSS meeting from 8:30 a.m. to 5:00 p.m. EST on August 12 and 13.

Please contact Juana Williams (juana.williams@nist.gov) if you wish to participate in or observe the work of the U.S. National Work Group. For more information on this work visit the WMD web site at <http://www.nist.gov/owm>, then go to W&M Resources and click on “Developing Commercial Hydrogen Measurement Standards.”



*Have a Safe
Summer!*

... in the field

Safety First

By John Barton

Many weights and measures programs in the United States are currently operating under reduced budgets and limited funding. As a result, there is a general trend to “do more with less” with regard to available resources. While many agencies struggle to maintain an acceptable level of service for the public they serve, to make a general statement that the quality of the field official’s work will suffer because of this condition would, in my opinion, be unfair and in many cases untrue. Yet, in some cases, this situation could lead field officials to focus more on fulfilling a perceived quota of completed device examinations rather than adhering to proper procedures when performing those examinations. Officials could feel pressured to do this given the general perception that within the operation of many legislative bodies, tangible results are likely to be given the most consideration when it comes to allocating funds for government programs.

While production numbers associated with the operation of a weights and measures program may typically be a factor used to rate its effectiveness, field officials should consistently be reminded that proper procedures must *always* be followed to ensure that weights and measures devices are correctly and safely evaluated. Safety should never be compromised for the sake of an increase in the number of completed device examinations. Many weighing and measuring devices may be located in environments that are inherently dangerous or present safety risks if correct test procedures are not properly followed. The nature of many of these devices and the commodities associated with their use should dictate that the paramount concern while working around them should be safety.

Given the large number of retail motor-fuel devices in the marketplace and the many hazards associated with their use, the retail motor-fuel dispenser will aptly serve as a fitting example to illustrate the point of this article. The point can be best made by relating to a personal experience which took place while working as a weights and measures field inspector - an experience that left a lasting memory and fervent belief that one can never be “too safe.”

I was inspecting and testing dispensers at a gasoline station using a trailer-mounted test unit that consisted of three 5-gallon provers, each positioned atop a separate reservoir tank. This particular unit enabled me to test several dispensers simultaneously, each designed to dispense three different fuel grades (low, mid, and high octane), before it was necessary to return the different products to their respective underground storage tanks. The relatively new equipment and test process was very efficient and, more often than not, allowed those using it to substantially boost the number of completed examinations in any

given period when compared to using handheld five-gallon provers.

A brief summary of the testing process using the trailer-mounted provers is as follows:

- ♦ The test unit was positioned at the dispenser to be tested.
- ♦ A five-gallon draft of one product was dispensed into the appropriate corresponding prover.
- ♦ A prover reading was taken and meter accuracy determined.
- ♦ The discharge valve located on the bottom of the prover was opened.
- ♦ The product in the prover flowed into the reservoir tank which was capable of holding multiple drafts from the prover.
- ♦ Subsequent drafts of the different grades of fuel were dispensed into the proper provers. The accuracy of the metering system for those products was determined and this process was repeated until the reservoirs below the provers became full.
- ♦ With the reservoirs full, the trailer was moved to the location of the fills for the underground storage for each product. Each product was then returned to the underground storage tanks by way of a hose attached to the discharge outlet for each of the reservoirs.

Lengths of hose used to transfer the product from the prover to the storage tanks were stored in sections of PVC (plastic) pipe, which were attached to the trailer structure. After removing the cover and cap from the underground storage fill pipe and removing one of the hoses from its storage compartment, I attached the hose to the coupling on the underground storage fill pipe. The instant the hose touched the metal surrounding the fill pipe, the gasoline vapor present in the well area of the fill pipe ignited. Barely a second later, I realized that the hose, which I now held in my hands, was rapidly growing hot to the touch. The gasoline vapor inside the hose had also ignited. I quickly tossed the hose to the side of the service station lot where, luckily, there was nothing in the vicinity that could have also caught fire.

Concerned about the open fill of the underground storage tank where a possible fireball could erupt, I immediately snatched up the cap and placed it over the top of the fill pipe. Using a fire extinguisher from my vehicle, the flames were extinguished around the fill pipe and by this time the vapors inside the hose had been exhausted.

Recalling this incident still evokes thoughts of a potential catastrophe, although I have learned since that the vapors in the underground storage tank would not likely have ignited under those conditions. Even the slightest possibility, however, of that type of disaster occurring is, to say the least, unsettling.

A follow-up investigation of the incident determined the likely source of ignition to be a discharge of static electricity that was

created from friction between the prover hose and the PVC compartment in which it was stored. The discharge of electricity occurred when the end of the prover hose first came into contact with the metal parts at the storage fill pipe, causing a spark hot enough to ignite the vapors present around the fill and inside the hose.

These types of test units are steadily increasing in popularity. A number of state and local weights and measures agencies are either currently using or anticipating the future use of these or similarly constructed units. Based on my own personal experience and other “close-call” incidents that have been reported, it is strongly advised that prior to using this type of equipment, experts be consulted in the proper and safe handling of petroleum products, to include proper grounding of equipment used during testing, and approved methods of fire prevention. All safety precautions should be adhered to while working with this type of equipment.

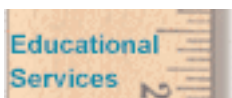
The following points are not intended to be construed as a policy that encompasses all necessary precautions to be taken in every situation. Instead, by utilizing what was learned through this “near-miss” experience, the following advice is being offered with the hope of preventing similar instances from occurring.

- ♦ Always use appropriate grounding devices with equipment while working with flammable products.
- ♦ Prior to attachment, touch hoses to appropriate ground in order to dissipate any built up electrical charges.
- ♦ Remove fuel storage fill caps only after assuring that any static charges in hoses and hook-ups are dissipated.
- ♦ Use only non-ferrous metal (preferably aluminum) connections and adapters.
- ♦ Do not use PVC or plastic for equipment storage. Instead, use metal storage containers that are grounded properly.
- ♦ Always have an approved and fully-charged fire extinguisher on hand and ready to use.
- ♦ If using funnels, make sure that they are constructed of metal and well grounded; never use plastic or rubber funnels.
- ♦ Look for possible sources of ignition in the vicinity of the testing area before discharging product into the provers or transferring it from the test unit reservoirs to proper storage. Always maintain a safe distance from possible ignition sources.
- ♦ There are numerous sources of complete and current information that should be consulted by those involved with this type of testing and handling of hazardous products. These resources provide practical expert information regarding the safe handling of petroleum products. Some of these resources are listed below:

- American Petroleum Institute (API)
- Occupational Safety and Health Administration (OSHA)
- National Fire Protection Association (NFPA)

Innovative testing equipment and procedures have been demonstrated as useful and important to weights and measures programs to supplant dwindling resources available to them. In many instances, these tools have provided a critical advantage for agencies to effectively serve the public and fulfill their responsibilities. Nevertheless, news reports of unfortunate and sometimes tragic accidents are not all that uncommon today where the source of the accident could have been avoided by following prescribed safety policies. I was very fortunate not to become the subject of such a news report and hope this article will serve the purpose of persuading those who find themselves working in similar situations to give the utmost attention to all potential dangers and adhere to all safety precautions.

For questions regarding this article, please contact John Barton, (301) 975-4002, or e-mail john.barton@nist.gov.



NIST Handbook 44 Self-Study

Updated Course Now Available for Free Download from Weights and Measures Division's Website

Members of Weights and Measures Division's (WMD's) Legal Metrology Devices Group (LMDG) recently updated the NIST Handbook 44, *Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices*, self-study course to the 2009 edition of NIST Handbook 44 and have made it available for a free download on WMD's website at www.nist.gov/owm. This course is intended to help prepare field officials to become familiar with and to use NIST Handbook 44. The course concentrates on the organization and use of NIST Handbook 44, not on requirements for specific devices. Although intended as an introductory level course designed primarily for new employees in the field of weights and measures, more experienced officials will also find it beneficial in providing refresher training and upgrading skills.

As the course title indicates, the course is a self study allowing those taking it to work at their own pace. Students are encouraged, however, to complete the course in a timely manner because the design of the course relies on continual reinforcement of subjects while they are fresh in the students' minds. The course material is divided into five chapters. Except for the first chapter, there are review questions at the end of each chapter to aid students in understanding the subject material. Answers to the review questions are also provided.

It is anticipated that students will need a minimum of 15 hours of study to complete the course and prepare them for a final exam. The final exam is still being developed, and once complete, the LMDG is planning to make it available on the web so

that students can take it remotely.

For additional information on the NIST Handbook 44 self-study course, contact Rick Harshman at (301) 975-8107 or e-mail: richard.harshman@nist.gov, Tina Butcher at (301) 975-2196 or e-mail: tina.butcher@nist.gov, or Diane Lee at (301) 975-4405 or email diane.lee@nist.gov.



FAQ? *We do get a few . . .
Do you have one?*

"Frequently Asked Questions"

By Steve Cook

Question: Is there a discrepancy between General Code paragraphs G-UR.2.2. and G-UR.3.3. in NIST Handbook 44, *Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices*? They seem to conflict each other since:

- ♦ G-UR.2.2. states that all scales, **including vehicle scales**, shall have "direct communication, visual or oral, between an individual located at a primary indicating or recording element and an individual located at the weighing or measuring element," and
- ♦ G-UR.3.3. seems to **exclude vehicle scales** by stating that all scales (and systems) "equipped with a primary indicating elements and used in direct sales, except for prescription scales, shall be positioned so that its indications may be accurately read and the weighing or measuring operation may be observed from some reasonable "customer" and "operator" position."

Answer: This response comes from several of the Weights and Measures Division (WMD) training courses chapters titled "Inspection," including the course on vehicle scales (<http://ts.nist.gov/WeightsAndMeasures/training.cfm>). It should be noted that paragraph G-UR.2.2. is intended to insure that the operator of the scale who is stationed at the indicating element can have accurate information about the application of the load to the load-receiving element, either based on his/her own visual observation, upon a report from a third party who is a direct observer, or through other means such as a live camera which allows visual contact. In the case of vehicle and axle-load scales, for example, it is essential that the operator know when the vehicle is entirely on the platform, with its axles positioned correctly and the driver out of the truck and off the platform, before recording the weight. Some weighing applications allow (or require for safety or security reasons) the driver and any occupants remain in the vehicle during weight determinations. The driver and any occupants shall be in the vehicle for both the empty and loaded vehicle weight determinations in

order that the value of tare does not change before determining the net weight value.

A more strict requirement is set forth in paragraph G-UR.3.3. and is applicable to devices used in direct sales. The customer must be given the opportunity to accurately read the scale from a reasonable position. Customers must be able to fulfill their responsibility of observing the weight determination of the vehicle in order to benefit from the requirements in Handbook 44 concerning customer readability. If the customer has no direct access to the device's indicating element, a remote display may be required to permit the customer to read the scale's indications.

For low capacity scale direct sale applications (e.g., price computing and point-of-sale scales), you may find occasions where the primary customer indications will be obscured by objects such as other products and promotional signs. These objects should be positioned so that they do not obscure or hide the weight information (including unit price, total price, tare, or net indications, etc.) needed by the customer in order to make an informed decision about the transaction.

For large capacity scale direct sale applications, customers must be able to accurately read the scale from a reasonable position. Customers must be granted the opportunity to observe the weighing of the vehicle and the weight indications in order to benefit from the requirements in Handbook 44 concerning customer readability. If the customer has no direct access to the device's indicating element, a remote display may be required to permit the customer to read the scale's indications.

If you have any questions about the above response, contact Steve Cook by telephone at 301-975-4003 or by e-mail at steven.cook@nist.gov.

Question: Are there any written examination procedures to test forklift sales.

Answer: There are no specific test procedures for testing forklift scales in NIST Handbook 112, *Examination Procedure Outlines For Commercial Weighing and Measuring Devices*. However, NTEP Certificates of Conformance (CC) have included field test procedures on each CC for forklift scales and other on-board weighing systems. For example, the following is from a recent NTEP CC for forklift scales:

Testing: For field testing, it is recommended that a standard type skid be used as a load receiver (Note: The skid would be equivalent to the load-receiving element on a platform scale). Test weights can then be loaded on the skid. Increasing/decreasing load and shift tests should be conducted. Out-of-level tests should be conducted to insure that the device maintains accuracy when out-of-level up to five percent, or the

maximum possible out-of-level condition at that location, and that the leveling sensor is adjusted properly and inhibits the weighing operation when the system is out-of-level to the extent that the accuracy limits are exceeded. This may normally be accomplished by moving the lift truck to an out-of-level area and/or tilting the forks.

It should be noted that the above procedure does not include any other special test procedures or inspection guidelines for this type of scale. In these cases, WMD believes that it would be appropriate to reference guidelines and procedures included in NIST Examination Procedures (EPOs) that apply to weighing devices used in similar applications. For example, EPO No. 7/8 Examination Procedure Outline for Medium-Capacity Scales could be referenced for applicable inspection guidelines on forklift scales since they typically weigh pallets in the same manner as medium capacity scales.

If you have any questions about the above response, contact Steve Cook by telephone at 301-975-4003 or by e-mail at steven.cook@nist.gov.

Question: What are the load cell replacement policies for scales installed during the 1986 - 1988 transition to the "New Scales Code"? Are the load cells required to be traceable to an NTEP CC?

Answer: The topic was first addressed by the NCWM Board of Governors (currently NTEP Committee) and was published as part of the 1988 Executive Committee Report Appendix H. The entire summary was published in the "Report of the 73rd National Conference on Weights and Measures - 1988 (page 129). The following was copied from the October 28 - 29, 1987, Meeting Summary of the Technical Committee on National Type Evaluation - Weighing Industry Sector (agenda Item 5, page 129-130).

The 1986 revision of the Scales Code introduced several new requirements, including influence factors, which were phased in beginning January 1, 1986. Paragraph T.N.8. required all new types of scales submitted for type evaluation after January 1, 1986, had to meet the requirements at that time. Device models that had been evaluated prior to January 1, 1986, had until January 1, 1988, to comply with the influence factors requirements if the devices were going to be manufactured after January 1, 1988. A uniform policy for addressing the repair and replacement of parts for devices installed in the field had to be established.

The (NCWM) Board of Governors established the following guidelines.

1. If a scale had a type evaluation before 1986 and the load cells were not tested for compliance with

the “new” Handbook 44 requirements, then the load cells in the scale may be replaced with load cells that have not been tested for compliance with the “new” requirements. Consequently, scale and load cell manufacturers may use equipment that has not been evaluated for compliance with the influence factors requirements as replacement parts for scales approved prior to 1986 and manufactured prior to 1988.

2. If a load cell is placed in a steelyard rod and a digital indicator is installed after January 1, 1988, this is a modification of the original type and the modified scale with the digital indicator must meet the “new” requirements of Handbook 44 because the scale will be marked with an accuracy class. However, if the previous weighbeam or dial indicator is retained as a back up indicator, the back up indicator remains as an unmarked scale.
3. If a scale has load cells that meet the “new” requirements, then the replacement load cells must meet the “new” requirements.
4. All load cells used in scales manufactured after January 1, 1988, must meet the “new” requirements.

As you can see, when Handbook 44 adopted the influence factor requirements for electronic scales in 1986, manufacturers of scales with existing approvals were given until 1988 to either resubmit their devices for evaluation to verify compliance with influence factors and, upon successful completion of the reevaluation, have their certificates updated to reflect that the type complied with the current requirements.

In the case of vehicle scales, manufacturers typically submitted an application to NTEP that documented the manufacturer, model number, capacity, and CC number of the load cells that would be installed on current production vehicle scales. No field evaluations were conducted unless the load cells with a CC required design changes to the load cell mounts and/or load-receiving element. In these cases, the updated vehicle scale CC would reflect the additional NTEP field evaluation.

WMD suggests that the NTEP CC for that scale be reviewed to verify if the CC was issued prior to 1986 (you have already stated that the scale was installed in 1987). If so, the load cells may be replaced with non-NTEP load cells provided they are identical in size and capacity to the original load cells according to the above policy in item 1 and that no modification of the load cell mounts and stands is required.

It should be noted that some states may not have adopted a type approval or NTEP law prior to the adoption of the references to NTEP and influence factors in Handbook 44. In cases where a state did not have an NTEP law, regulation or policy in place at

the time a non-NTEP scale was installed, the state may want to refer to NIST Handbook 130, *Uniform Laws and Regulations in the Areas of Legal Metrology and Fuel Quality*, National Type Evaluation Regulation for additional information and guidance in Section 4 Prohibited Act paragraphs (c) through (g) (“A device in service in this State prior to _____, _____, _____”).

If you have any questions about the above response, contact Steve Cook by telephone at 301-975-4003 or by e-mail at steven.cook@nist.gov.

Question: Can asphalt be considered a “bituminous concrete” for scale approaches? This jurisdiction does not accept asphalt for the approaches on scales, only concrete.

Answer: WMD believes that the language in UR.2.6.1.(c) was adopted to include asphalt as a “similar durable material” as long as that portion of the approach remains smooth and level and in the same plane as the platform.” However, WMD believes that the use of asphalt will likely require more effort to maintain smooth and level planes with the platform than concrete that uses cement as the binding material.

The answer to this inquiry was determined by reviewing:

1. Scales Code paragraph UR.2.6. Approaches. (c). The language states that;

“any approach adjacent to the platform shall be constructed of concrete or similar durable material to ensure that this platform remains smooth and level and in the same plane as the platform.”

2. The Report of the 73rd National Conference on Weights and Measures – 1977 (pages 168-170). The S&T Committee stated in its final report that:

It is the view of the committee that (a) grating in an approach is certainly acceptable if it is so constructed that test weights can be moved across it; (b) **bituminous material is adequate providing it is maintained in such a manner that the approaches are smooth and level;** (c) a slope in the approach for drainage is proper; and (d) it is not necessary to amend the code to provide for directional signs, since any jurisdiction experiencing problems may so require.

3. The definition for “bituminous concrete” appears to be synonymous with the terms concrete and asphalt. The following terms and definitions come from www.wikianswers.com (www.answers.com).
 - a. Bituminous concrete –

- i. Materials - A concrete made with bituminous material as a binder for sand and gravel.
 - ii. Blacktop - A bituminous material, such as asphalt, used to pave roads.
- b. Concrete –
- i. A hard, strong construction material consisting of sand, conglomerate gravel, pebbles, broken stone, or slag in a mortar or cement matrix.
 - ii. A mass formed by the coalescence of particles.
- c. Asphalt –
- i. A brownish-black solid or semisolid mixture of **bitumens** obtained from native deposits or as a petroleum byproduct, used in paving, roofing, and waterproofing.
 - ii. Mixed asphalt and crushed stone gravel or sand, used for paving or roofing.

Additional information on vehicle scale approaches is included in NIST Vehicle and Axle-Load Scales Presentations and Course Material, Chapter 3 at <http://ts.nist.gov/WeightsAndMeasures/training.cfm>.

If you have any questions about the above response, contact Steve Cook by telephone at 301-975-4003 or by e-mail steven.cook@nist.gov.



Summer Safety Tips . . . from

U.S. Consumer Product Safety Commission

Some hot tips to keep in mind during the active months of summer:

- ♦ When cooking outdoors with a gas grill, check the air tubes that lead into the burner for any blockage from insects, spiders, or food grease. Check grill hoses for cracking, brittleness, holes, and leaks. Make sure there are no sharp bends in the hose or tubing. If you ever detect a leak, immediately turn off the gas at the tank and don't attempt to light the grill until the leak is fixed. Newer grills and propane tanks have improved safety devices to prevent gas leaks.
- ♦ Never bring charcoal grills indoors. Burning charcoal produces deadly carbon monoxide.

- ♦ Use layers of protection to prevent a swimming pool tragedy. This includes placing barriers completely around your pool to prevent access, using door and pool alarms, closely supervising your child and being prepared in case of an emergency.
- ♦ Summer also means yard work. When mowing, keep small children out of the yard, and turn the mower off if children enter the area. If the lawn slopes, mow across the slope with the walk-behind rotary mower, never up and down. With a riding mower, drive up and down the slope, not across it. Never carry children on a riding mower.
- ♦ Install window guards to prevent children from falling out of open windows. Guards should be installed in children's bedrooms, parents' bedrooms, and other rooms where young children spend time. Or, install window stops that permit windows to open no more than 4 inches. Whenever possible, open windows from the top - not the bottom. Also, keep furniture away from windows to discourage children from climbing near windows.
- ♦ Make sure your home playground is safe. Falls cause 60 percent of playground injuries, so having a safe surface is critical. Concrete, asphalt or packed dirt surfaces are too hard. Use at least nine inches of wood chips or mulch.

For more timely tips view the Consumer Product Safety Commission website at:

<http://www.cpsc.gov/cpscpub/prerel/prhtml02/02182.html>

Kidd Safety

Visit Kidd Safety with your child. The Consumer Products Safety Commission has online games and activities to make your child more "safety aware."
<http://www.cpsc.gov/kids/kidsafety/index.html>



Areas of Interests on the NIST Weights and Measures Division Contact Management System

As you have seen on the WMD home page (www.nist.gov/owm) and in the spring WMD newsletter article, the new NIST Weights and Measures Division Contact Management System allows you to update your contact information, submit comments on draft publications, or request training on a range of weights and measures subjects as listed in the course index.

In addition to training and publication information, the new contact management system will also let you sign up for various mailing lists that includes "Areas of Interests" on several weights and measures subjects such as but limited to:

- International Legal Metrology
- Laboratory Metrology
- Meters
- NCWM Standing Committees and Subcommittees
- NTEP Technical Committees
- OIML Technical Committees
- Other Associations
- Other Devices (e.g., taximeters, cryogenic meters, moisture meters, etc.)
- Packaging/Labeling
- Scales

Several mailing lists were already established in the previous weights and measures database, which was imported into the new contacts management system. You are encouraged to log in (or register if you have not already done so) and update your list of subjects and "Areas of Interests" for future mailings and notifications. For example, former members of an NCWM Standing Committee may still be on the mail list and no longer want to receive future mailings and notifications to that standing committee.

We hope that you will find this a useful resource to enhance communication with WMD and to stay informed on weights and measures activities, and products.

The link for the database is:
<https://tsapps.nist.gov/wmd/Default.aspx>

Please feel free to contact Urvi Shah (urvi.shah@nist.gov) at (301) 975-2128 with any questions.



Calendar of Events

JULY 2009

26 – 30
NCSL International Workshop & Symposium
San Antonio Convention Center
San Antonio, TX
Contact: NCSLI, 303-440-3339 or www.ncsli.org

AUGUST 2009

11-13
USNWG for the Development of Commercial Hydrogen

Measurement Standards
NIST
Gaithersburg, MD
Contact: Juana Williams, NIST Technical Advisor, Device Standards Subcommittee, 301-975-3989 or juana.williams@nist.gov

19 – 20
NTETC Grain Analyzer Sector
Chase Suite Hotel by Woodfin at KS City Airport
Kansas City, MO
Contact: Jim Truex, NTEP Administrator, 402-434-4880 or info@ncwm.net

25 – 27
NTETC Weighing Sector
Doubletree Hotel
Columbus, OH
Contact: Jim Truex, NTEP Administrator, 402-434-4880 or info@ncwm.net

SEPTEMBER 2009

13 – 16
Central Weights and Measures (CWMA)
Interim Meeting
Holiday Inn
Rock Island, IL
Contact: Jonelle Brent, 217-785-8301 or jonelle.brent@illinois.gov

20 – 24
Western Weights and Measures Association (WWMA)
Annual Meeting
Hotel Encanto de Las Cruces
Las Cruces, NM
Contact: Joe Gomez, 575-646-1616 or jgomez@nmda.nmsu.edu

OCTOBER 2009

2 – 3 (tentative)
NTETC Measuring Sector
Hilton Clearwater Beach
Clearwater Beach, FL
Contact: NCWM HQ or Jim Truex, NTEP Administrator, 402-434-4880 or www.ncwm.net or info@ncwm.net

4 – 7
SWMA Annual Conference
Hilton Clearwater Beach
400 Mandalay Avenue
Clearwater Beach, FL
Contact: Steve Hadder, 850-487-2634 or hadders@doacs.state.fl.us/standards
Max Gray, 850-488-9140 or graym@doacs.state.fl.us
URL: www.ncwm.net/southern

14 – 15
Northeastern Weights and Measures Association (NEWMA)
Interim Meeting
TBD
Contact: James Cassidy, 617-349-6133 or
jcassidy@cambridgema.gov

20 - 22
Retail Motor-Fuel Dispensers
Pennsylvania Weights & Measures Association
Contact: Rick Harsham, 301-975-8107 or
richard.harsham@nist.gov

26 – 30
Basic Mass for Industry
NIST
Gaithersburg, MD
Contact: Val Miller, 301-975-3602 or val.miller@nist.gov
Applications at: www.nist.gov/labmetrology

NOVEMBER 2009

2 – 6
Intermediate Metrology
NIST
Gaithersburg, MD
Contact: Val Miller, 301-975-3602 or val.miller@nist.gov
Applications at: www.nist.gov/labmetrology

11 - 13
Scale Manufacturers Association (SMA) Fall Meeting
Chicago O'Hare Hilton
Chicago, IL
Contact: 239-514-3441 or
bob@scalemanufacturers.org

JANUARY 2010

24 – 27
NCWM 95th Interim Meeting
Hilton Nashville Downtown
Nashville, TN
Contact: NCWM HQ, 402-434-4880 or
info@ncwm.net

FEBRUARY 2010

8 - 12
Advanced Mass Hands-on
NIST
Gaithersburg, MD
Contact: Val Miller, 301-975-3602 or val.miller@nist.gov
Applications at: www.nist.gov/labmetrology

MARCH 2010

1 - 12
Basic Metrology - States
NIST
Gaithersburg, MD

Contact: Val Miller, 301-975-3602 or val.miller@nist.gov
Applications at: www.nist.gov/labmetrology

22 - 26
Measurement Science Conference
Pasadena, CA
Contact: 866-672-6327 or
www.msc-conf.com/msc/index.html

APRIL 2010

12 - 16
SEMAP
NIST
Gaithersburg, MD
Contact: Val Miller, 301-975-3602 or val.miller@nist.gov
Applications at: www.nist.gov/labmetrology

MAY 2010

3 - 7
WRAP
NIST
Gaithersburg, MD
Contact: Val Miller, 301-975-3602 or val.miller@nist.gov
Applications at: www.nist.gov/labmetrology

17 - 21
Basic Mass Industry
NIST
Gaithersburg, MD
Contact: Val Miller, 301-975-3602 or val.miller@nist.gov
Applications at: www.nist.gov/labmetrology

JUNE 2010

22 - 26
Laboratory Administrator Seminar
Austin, TX
Contact: Val Miller, 301-975-3602 or val.miller@nist.gov
Applications at: www.nist.gov/labmetrology

JULY 2010

11 - 15
NCWM 95th Annual Meeting
The Crown Plaza, St. Paul Riverfront
St. Paul, MN
Contact: NCWM 402-434-4880 or info@ncwm.net
URL: www.ncwm.net

25 - 29
NCSL International Workshop & Symposium
Rhode Island Convention Center
Providence, RI
Contact: NCSLI, 303-440-3339 or www.ncsli.org

SEPTEMBER 2010

13 - 17
NEMAP
NIST

Gaithersburg, MD
Contact: Val Miller, 301-975-3602 or val.miller@nist.gov
Applications at: www.nist.gov/labmetrology

For meetings and events for the **American Petroleum Institute (API)**, please check the API website at www.api.org and click on the Meetings and Training Section under the “Energy Professional Site” bullet on the left-hand portion of the home page. Information for **American Society for Testing and Materials (ASTM)** meetings is available at www.astm.org on their Internet website. Click on the “Meetings” bullet on the left-hand portion of the home page. These meetings and seminars are updated on a continuous basis.

For information regarding **American National Standards Institute (ANSI)**, click on the “Meetings and Events” bullet on their website at www.ansi.org. For information regarding the National Conference on Weights and Measures (NCWM), please check the NCWM website at www.ncwm.net.

If you want your meeting, conference or training session included in the Calendar of Events, please contact WMD at 301-975-4004 or owm@nist.gov.



NOTE: An updated calendar showing currently scheduled events and training can be found on the Weights and Measures Division Website at:

<http://ts.nist.gov/WeightsAndMeasures/calendar3.cfm>