**NIST Working group on**

**Alternative Test Methods for Commercial Measuring Devices**

**April 24, 2012 – Gaithersburg, MD**

**10:00 a.m. to 5:00 p.m.**

**Tentative Agenda**

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1. Overview and Introductions

An overview of the purpose and scope of the meeting along with other administrative and logistical details will be provided by NIST and participants will introduce themselves.

1. Defining the Working Group – Scope, Charter, Operation, and Meetings
   1. **Scope of Working Group**

The scope of the working group will be reviewed and defined along with proposed timelines for the work.

* 1. **High-level matrix**

A high-level matrix outlining various, existing test methods for measuring devices along with components (e.g., documentary standards, training, equipment, and test procedures) required at multiple levels to ensure metrological traceability of measurements will be presented and discussed.

* 1. **Draft Charter for Working Group**

A draft charter, including elements such as working group membership and composition, voting criteria, agenda development, and other parameters for the working group will be reviewed and input from participants incorporated.

1. Terminology and Education
   1. **Terminology and Definitions**

Terminology for various types of testing equipment and test methods in use may be inconsistently used and/or understood by some members of the weights and measures community. Before proceeding with further work, it is important to identify the range of test methods and equipment and ensure that well-understood and accepted definitions are in place. Participants will identify and discuss existing definitions for proving systems and determine whether or not revisions should be proposed or if terminology for new methods should be proposed. Examples of terminology include: closed loop provers, master meters, open neck provers, pipe provers, small volume provers, etc.

* 1. **Education**

Over the past several months, NIST has presented multiple webinars on metrological traceability that have been targeted to weights and measures administrators and others interested in this subject. NIST will provide an update on the status of that work. Participants will be asked to provide input on any suggestions for future tasks to assist in educating the weights and measures community on these concepts or on the use and application of particular test methods or associated components.

1. Documentary Standards for Field Test Standards – NIST Handbook 105 Series

A key component for ensuring metrological traceability is to ensure the existence and application of documentary standards for each type of field test standards (physical measurement standard) or test method used. NIST develops and publishes a series of handbooks referred to as the “NIST Handbook 105 Series,” which outline specifications, tolerances, and other criteria for field test standards such as measuring flasks, neck-type volumetric standards, LPG provers, etc. Regulatory weights and measures programs adopt and use the Handbook 105 Series of handbooks in assessing test equipment and test methods used in their jurisdictions.

Some have questioned whether or not there are gaps for specific test methods or equipment. Using the matrix outlined in Agenda Item 2, participants will discuss at a high level whether or not gaps exist in the availability of a 105 standard for a particular type of test equipment or whether an existing 105 standard might be modified to recognize that equipment.

In instances where a new 105 handbook is needed or modifications required, the working group will define and agree upon a proposed course of action, noting that these issues will need to be revisited for specific test equipment and test method as work progresses. Tasks may include:

* identifying existing standards from other organizations (e.g., OIML, ASTM, API);
* conducting side-by-side field comparisons of using specific types of physical standards under varying conditions;
* analysis of collected data, including associated measurement uncertainties, and identification of any systematic errors;
* defining, if needed, calibration intervals based on collected data; and
* identifying and discussing other variables involved in the implementation and use of the equipment.

Note that this agenda item may overlap with Agenda Item 6.

1. Modification/Development of Equipment, Procedures, and Training – Laboratory

In addition to components identified in other agenda items, a key component for ensuring metrological traceability is to ensure that State metrology laboratories are able to support the calibration and conformity assessment of the field standards. Participants will discuss the general requirements required for support along with requirements for any specific test standards/calibration procedures identified, noting that these issues will need to be revisited for specific field test standards and calibration procedures as work progresses. Requirements will cover elements such as, but not limited to:

* availability of reference standards, working standards, and equipment in the State metrology laboratories (or accredited calibration laboratories) to verify the field test standards;
* evaluation of laboratory calibration procedures, including any requirement modifications
* development and delivery of training on laboratory calibration procedures;
* proficiency testing; and
* documentation requirements.

1. Modification/Development of Equipment, Procedures, and Training - Field Applications

In addition to components identified in other agenda items, a key component for ensuring metrological traceability is to ensure that weights and measures jurisdictions and service personnel are able to support the testing and verification of the measuring equipment and that the test method is appropriate for use in testing specific types of measuring devices.

Participants will discuss the general requirements required for support along with requirements for any specific field standards/methods identified, noting that these issues will need to be revisited for specific field standards and test methods as work progresses. Requirements will cover elements such as, but not limited to the following:

* conducting side-by-side comparisons of testing conducted with specific types of field standards under varying conditions;
* analysis of collected data, including associated uncertainties;
* identifying differences between the test method and the use of the device under test and assessing whether or not the differences are significant;
* discussion of issues related to the acceptance and implementation of a particular test method, including:
  + required modifications to laws or regulations to recognize a specific test method or device;
  + how to address any systematic errors;
  + differences between methods used by regulators and service companies; and
  + other enforcement implications
* identifying any required modifications to NIST Examination Procedure Outlines (EPOs);
* development and delivery of training for field officials and service personnel;
* developing guidelines, information, and education for regulatory officials or service personnel who may conduct “witness testing” using a particular type of equipment; and
* identifying and discussing other variables involved in the implementation and use of the field standards and associated equipment.

Note that this agenda item may overlap with Agenda Item 4.

1. Modification of NIST Handbook 44

In addition to components identified in other agenda items, a key component for ensuring metrological traceability is to determine whether or not modifications are required to NIST Handbook 44 to recognize a particular type of field standard or associated test methods.

Participants will discuss the general requirements required for proposing such modifications, including tasks such as the following:

* Evaluate the need to propose modifications to NIST Handbook 44 “Notes” section(s) and other sections such as Appendix A – Fundamental Considerations;
* Identifying and discussing the process for developing and proposing changes;
* Developing and submitting proposed changes through the NCWM Specifications and Tolerances Committee;
* Informing the weights and measures community of any adopted changes; and
* Developing and delivering training to ensure uniform implementation of any changes.

1. Next Meeting(s)

The Working group will discuss plans for subsequent working group and/or subcommittees.