

## Report of the Professional Development Committee (PDC)

Ross Andersen, Chairman  
New York Weights and Measures  
Albany, New York

Reference  
Key Number

### 400 INTRODUCTION

The Professional Development Committee (Committee) submits its Interim Report for consideration by the National Conference on Weights and Measures (NCWM). This report contains the items discussed and actions proposed by the Committee during its Interim Meeting in Nashville, Tennessee, January 24 - 27, 2010.

Table A identifies the agenda items in the Report by Reference Key Number, Item Title, and Page Number. An item marked with an “**I**” after the reference key number is an Informational item. An item marked with a “**D**” after the reference key number is a Developing item. The developing designation indicates that an item has merit; however, the item was returned to the submitter for further development before any action can be taken at the national level. Table B lists the appendices to the agenda.

The recommendations are statements of proposals and are not necessarily those of the Committee.

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**Table A**  
**Index to Reference Key Items**

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**Details of All Items**  
(In Order by Reference Key Number)

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**401 EDUCATION**

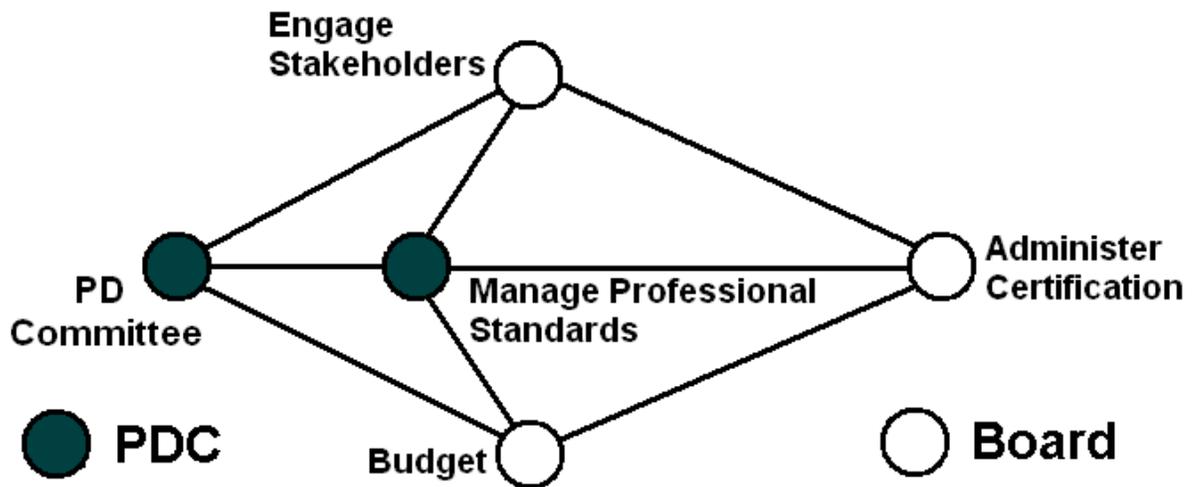
**401-1 I National Certification Program (NCP)**

**Source:** Carryover Item 401-1. (This item originated from the Committee and first appeared on its agenda in 2003.) The committee has combined items previously numbered as 401-1 National Certification Program (NCP), 401-2 Create a Curriculum Plan, and 401-4 Certification into one item covering all aspects of the certification program.

**Background/Discussion:** For complete background information, see the PDC page or the PDC meeting archives on the NCWM website ([www.ncwm.net](http://www.ncwm.net)), or the previous committee reports available from the NIST website ([ts.nist.gov/WeightsAndMeasures/pubs.cfm](http://ts.nist.gov/WeightsAndMeasures/pubs.cfm)).

At the 2009 NCWM Interim Meeting, the PDC developed an action plan based upon the critical path analysis already completed. In this plan, responsibilities were divided between the NCWM Board of Directors and the PDC Committee. The PDC manages professional standards by developing and maintaining the curricula. It also creates the exams by deciding the weight of curriculum segments and then by writing and evaluating test questions. The Board provides physical resources and staffing to compile the exams, issue certificates, and maintain records.

## NCWM National Certification Program



A goal was set to have all the elements in place to begin beta testing a certification examination in one competency area by November 2009, and in three more competency areas by 2010. The initial plans were to target retail motor fuel devices (RMFDs), small capacity Class III scales, package checking, and Vehicle Tank Meters (VTM).

**Discussion:** At the 2010 interim meeting, the committee reported that question development for the RMFD exam is now complete. The questions were provided to NCWM staff. Writing the questions was a learning process for the Committee, and they wish to express appreciation to Mr. Dick Suiter of Suiter Consulting LLC for his assistance in evaluating the test questions.

New pages are going to be added to the NCWM website that will allow non-members to access the Certification Discipline (test description) and related Curriculum Segments (certification standards), which are currently available in Appendices A & B of the PDC report. The test instructions and implementation steps will also be posted on the new pages. Existing members' only pages will continue to be used to document program development. A wide range of documents, including the certification plan and related work documents used by the Committee in its work will be posted on this page.

A beta test is scheduled for spring 2010. NCWM staff will set up the online test and issue a broadcast announcement to state directors and members via e-mail. There will be no fee for the beta test, but people interested in taking the test must contact NCWM for a user name and password. Applicants will be asked for their job title and years of weights and measures experience when they log in to take the test. This information is for evaluation purposes only. There will be no opportunity to enter names or jurisdictions since certification will not be issued based on beta test results.

The primary purpose of the beta test is to evaluate the functionality of the testing service. The secondary purpose is to evaluate the number and appropriate difficulty level of the test questions.

The beta test will be free and, once announced, will be available for 30 days or to the first 100 testers, whichever comes first. The test will be open to anyone – weights and measures or industry. The test will be 2 hours long and will consist of 50 questions drawn from the following disciplines:

- Part 1 (15 questions) – Segment 4.2. NIST Handbook 44 – Introduction to Device Control
- Part 2 (15 questions) – Segment 4.4. Dynamic Measuring Systems – General
- Part 3 (20 questions) – Segment 4.4.1. Retail Motor Fuel Devices

The Committee also reported that they had made progress developing other Certification Disciplines. In order of priority they are:

Small Capacity Class III Scales (up to 300 lb)

- Part 1 (15 questions) – Segment 4.2. NIST Handbook 44 – Introduction to Device Control
- Part 2 (10 questions) – Segment 4.3. Weighing Systems, General
- Part 3 (10 questions) – Segment 4.3.1. Static Electronic Weighing Systems, General
- Part 4 (5 questions) – Segment 4.3.2. Static Mechanical and Hybrid Weighing Systems, General
- Part 5 (10 questions) – Segment 4.3.5. Small Capacity Weighing Systems Class III

Vehicle Tank Meters

- Part 1 (15 questions) – Segment 4.2. NIST Handbook 44 – Introduction to Device Control
- Part 2 (15 questions) – Segment 4.4. Dynamic Measuring Systems – General
- Part 3 (20 questions) – Segment 4.4.4. Vehicle-Tank Meter Systems

Package Checking

- Part 1 (20 questions) – Segment 5.3.1. Commodities – General
- Part 2 (15 questions) – Segment 5.3.2. Packages Labeled by Weight, Standard and Random
- Part 3 (15 questions) – Segment 5.3.4. Packages Labeled by Volume (Volumetric and Gravimetric Testing)

The committee will be seeking assistance from the regional Professional Development Committees to augment test question banks in these disciplines.

**401-2 D Instructor Improvement**

**Source:** Carryover Item 401-3 (This item originated from the Committee and first appeared on its agenda in 2003.)

**Background/Discussion:** The Committee is charged with the coordination of activities to improve the competence of instructors and the uniformity of delivery of the curriculum. For complete background information, see the PDC pages of the NCWM website ([www.ncwm.net](http://www.ncwm.net)). After logging in under the members' area, look under the PDC Legacy Documents for the PDC Formal Scope.

Industry has continued to support and sponsor training on their new technology for weighing and measuring devices. NIST has assured the Committee that work will continue towards providing technical training for the trainers. The Committee supports the recommendation from the WWMA to encourage jurisdictions to participate in the NIST, WMD Instructor Training program as those classes become available.

At the NCWM 2009 Interim Meeting, a work group from the NCWM BOD provided information to the Committee on initiatives it was considering to use the NCWM website to provide training materials and other trainer aids, such as presentations, videos, etc. The Committee applauds and supports the Board's efforts. However, the Committee will continue to maintain this item as low priority until other parts of the certification program are completed.

At the 2009 Annual Meeting and 2010 Interim Meeting, the Committee reported that no action is being taken on this item while the Committee concentrates on curriculum development and the establishment of the certification program.

### **401-3 I Recommended Topics for Conference Training**

**Source:** Carryover Item 401-5 (This item originated from the Committee and first appeared on its agenda in 2003.)

**Background/Discussion:** The Board has charged the Committee with responsibility for selecting appropriate topics for the technical sessions at future Annual Meetings. The Board asked that the Committee review and prioritize possible presentations and submit those to the Chairman. The Chairman would then work with NCWM staff to make the arrangements and schedule the sessions.

The Committee continues to carry the following list and recommends these topics for possible training seminars, roundtables, or symposia for presentation at the NCWM meetings:

- (a) Risk-based Inspections (Mr. Robert Williams, Tennessee, volunteered to present his state's RMFD testing program);
- (b) Marketplace Surveys;
- (c) Auditing the Performance of Field Staff (Mr. Will Wotthlie, Maryland, volunteered to lead the session);
- (d) Alternative Fuels (Fuel Volatility Issues and Ethanol Blending, and biodiesel blend issues);
- (e) Device Inspections Using a Sampling Model;
- (f) Emerging Issues;
- (g) Ergonomics (including Proper Lifting Techniques, Back and Stress Techniques and Office Ergonomics);
- (h) Public Relations, specifically dealing with aggressive/angry people (recommended by the SWMA);
- (i) General Safety Issues (recommended by the WWMA);
- (j) Defensive Driving (recommended by the WWMA);
- (k) Administrative Civil Penalty Process (recommended by the WWMA);
- (l) Price Verification (recommended by the WWMA);
- (m) Customer Service (recommended by the WWMA);
- (n) Ethics (recommended by the CWMA);
- (o) Automatic Temperature Compensation (ATC) testing for field inspectors;
- (p) Hydrogen Measuring Systems;
- (q) Handbook 44 Scale Code Tare Changes;
- (r) Wet Tare/U.S. Department of Agriculture (USDA) Issues; and
- (s) Moisture Loss.

The Committee believes that the training sessions at the NCWM meetings could be taped and the video materials made available on the website to start building a library. The Committee plans to approach the AMC for funding for video equipment expressly for this purpose. Just prior to the 2009 Annual Meeting, the Committee sent a letter asking the Associate Membership Committee (AMC) for video equipment funding to record future technical presentations. The intention is to provide an online library. The AMC announced from the floor that they had approved the request for funding at their meeting. The Committee was notified that NCWM staff purchased video equipment under that grant from the AMC, and it will be used in future training sessions.

**Discussion:** The Committee recommended the following topics for 2010 Annual meeting:

- Using training to motivate employees
- VCAP program
- Risk-based inspection schemes
- Ink jet cartridges
- Proper ergonomic techniques

The committee received written comments from Paul Hoar of AgriFuels LLC suggesting that the Committee challenge the Associate Membership to provide training materials (videos, operations manuals, etc.) to the conference for use in developing the skills of NCWM members and state weights and measures officials.

## 402 PROGRAM MANAGEMENT

### 402-1 I Safety Awareness

**Source:** Carryover Item 402-1 (This item originated from the Committee and first appeared on its agenda in 2003.)

**Background/Discussion:** In the past, the Committee’s responsibility extended to the identification of safety issues in the weights and measures field and included efforts to increase safety awareness. Jurisdictions are encouraged to send their safety reports and issues to their regional safety liaison, who in turn will forward them to the Professional Development Committee. Below is a list of the Regional Safety Liaisons.

SWMA	Mr. Steve Hadder, Florida Department of Agriculture and Consumer Services
WWMA	Mr. Dennis Ehrhart, Arizona Department of Weights and Measures
CWMA	Ms. Julie Quinn, Minnesota Department of Commerce
NEWMA	Mr. Michael Sikula, New York Bureau of Weights and Measures

The Committee will continue to ask the regions to prepare articles for the NCWM newsletter and revised the schedule as follows for future issues. The Committee plans to notify the Regional Safety Coordinators as their assignment date approaches.

Association	Issue	Publication Date	Article Deadline
CWMA	2010, Issue 2	June	April 15, 2010
NEWMA	2010, Issue 3	September	July 15, 2010
SWMA	2011, Issue 1	February	January 15, 2011
WWMA	2011, Issue 2	June	April 15, 2011

All articles should be e-mailed to the NCWM headquarters at [info@ncwm.net](mailto:info@ncwm.net).

**Discussion:** The Committee did not receive any safety issues from the Regional Safety Liaisons. It did update the publication schedule for future NCWM Newsletters as shown in the table above.

### 402-2 I PDC Publication

**Background/Discussion:** This item originally served to record the development of various documents prepared in pursuit of our training and certification programs. These are available on the Member’s section of the NCWM website at [www.ncwm.net](http://www.ncwm.net). At the 2008 Annual Meeting, the Committee indicated its desire to eliminate this item from the agenda. However, in the report from the CWMA PDC Committee, the Committee received a proposal to create a standard like HB 130, *Uniform Laws and Regulations in the Areas of Legal Metrology and Engine Fuel Quality*, or HB 44, *Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices*, to serve as the work product of the Committee. This standard could be reviewed, amended, and adopted by

the NCWM to make it a living document. The Committee considered this proposal during discussions held at the 2009 Interim Meetings.

Based on feedback at the 2009 NCWM Interim Meeting, the PDC decided to move forward on the new publication to be titled NCWM Publication XX National Certification Program Guide. This publication will serve to document the details of the Certification Program.

The guide will remain under control of the PDC Committee but will not require formal NCWM vote to add new sections or revise existing sections. The Committee will add and modify sections continuously to meet its priority objectives with a concerted effort to respond to feedback from program users and the NCWM membership. The three main sections of the Guide would include:

1. Program Administration – combines historical documentation (curriculum outline and work plan, etc.) with administrative procedures on administering exams and records of certifications,
2. Competency Standards – includes the curriculum segments that describe the objectives and measurable competencies that will be used in certification, and
3. Certification Disciplines – includes one document per certification area delineating the standards from the curricula that will be covered in the exam and the weighting of the competencies.

All segments of the PDC publication will be posted online as they are developed. New pages within the NCWM website will be created for the curriculum disciplines and segments so that interested parties can easily find and utilize this material.

Guidelines for operation of the Certification Program still need developing and will be posted online when they are completed.

**Discussion:** Please refer to the discussion in Item 401-1 for a description of the segments of the PDC Publication that are now, or will soon be available online.

Mr. Ross Andersen, Chair, New York

Ms. Stacy Carlsen, Marin County, California

Ms. Julie Quinn, Minnesota

Mr. Dale Saunders, Virginia

Mr. Steven Grabski, Walmart

**Professional Development Committee**

## Appendix A



### National Conference on Weight and Measures National Certification Program

#### NCWM CURRICULUM WORK PLAN

*Revised January 2010*

#### Segment/Subject

##### Level 1/Level 2/Level 3

#### 1. Fundamentals of Weights and Measures

- 1.1. Introduction to Weights and Measures Programs
- 1.2. W&M Laws and Regulations
- 1.3. Field Standards and Test Equipment
- 1.4. State Program Scope and Overview
- 1.5. Enforcement Powers

#### 2. W&M Administration

- 2.1. Fundamentals of W&M Administration (Commercial System, Powers and Duties, etc.)
- 2.2. Administration Functions (Personnel, Management, Budget, Safety, etc.)
- 2.3. Legislation and Regulations (Legal Considerations, Interaction with Legislature, Stakeholders, Industry, etc.)
- 2.4. Regulatory Control (Device Inspection, Commodities, Complaints)
- 2.5. Laboratory Metrology Administration (Purpose of Laboratory, Responsibilities of Metrologist, NIST Expectations for Recognition of Laboratory, Quality System, Training Requirements, etc.)
- 2.6. Public Relations and Communications (Publicity, Public Relations, Communications)

#### 3. Laboratory Metrology

- 3.1. NIST Basic Metrology
- 3.2. NIST Intermediate Metrology
- 3.3. NIST Advanced Metrology

#### 4. Device Control Program

- 4.1. Safety Considerations
- 4.2. NIST Handbook 44 – Introduction to Device Control
- 4.3. Weighing Systems, General
  - 4.3.1. Static Electronic Weighing Systems, General
  - 4.3.2. Static Mechanical and Hybrid Weighing Systems, General
  - 4.3.3. Dynamic Weighing Systems, General
  - 4.3.4. Precision Weighing Systems Class I and II
  - 4.3.5. Small Capacity Weighing Systems Class III
  - 4.3.6. Medium Capacity Weighing Systems Class III
  - 4.3.7. Large Capacity Class III and IIIL Weighing Systems (Vehicle and Livestock)
  - 4.3.8. Large Capacity Class III and IIIL Weighing Systems - Advanced
  - 4.3.9. Railroad Track Weighing Systems
  - 4.3.10. In-Motion Railroad Track Weighing Systems
  - 4.3.11. Hopper Weighing Systems

- 4.3.12. Automatic Bulk Weighing Systems
- 4.3.13. Automatic Weighing Systems
- 4.3.14. Belt Conveyor Weighing Systems
- 4.3.15. In-Motion Monorail Weighing Systems
- 4.3.16. Point-of-Sale Weighing Systems
- 4.3.17. Other Specialty Weighing Systems
- 4.4. Dynamic Measuring Systems – General
  - 4.4.1. Retail Motor Fuel Dispensers
  - 4.4.2. Loading Rack and Other Stationary Metering Systems
  - 4.4.3. Loading Rack and Other Stationary Metering Systems – Advanced
  - 4.4.4. Vehicle-Tank Meter Systems
  - 4.4.5. Vehicle-Tank Meter Systems – Advanced
  - 4.4.6. Milk Metering Systems
  - 4.4.7. Water Meters
  - 4.4.8. LPG/Anhydrous Ammonia Liquid Metering Systems
  - 4.4.9. LPG/Anhydrous Ammonia Liquid Metering Systems – Advanced
  - 4.4.10. LPG Vapor Meter Systems
  - 4.4.11. Mass Flow Metering Systems
  - 4.4.12. Other Metering Systems (Cryogenics, Carbon Dioxide, etc.)
- 4.5. Static Volume Measuring Systems – General
  - 4.5.1. Liquid Measures
  - 4.5.2. Farm Milk Tanks
  - 4.5.3. Dry Measures
- 4.6. Other Measuring Systems
  - 4.6.1. Taximeters and Odometers
  - 4.6.2. Wire and Cordage Measuring Systems
  - 4.6.3. Linear Measures
  - 4.6.4. Timing Devices
  - 4.6.5. Weights
  - 4.6.6. Multiple Dimension Measuring Systems
- 4.7. Quality Measuring Systems
  - 4.7.1. Grain Moisture Meters
  - 4.7.2. NIR Grain Analyzers
  - 4.7.3. Carcass Evaluation Systems

**5. Market Practices, Laws and Regulations (NIST HB 130) and Commodities (NIST HB 133)**

- 5.1. Safety Considerations – Market Practices, NIST Handbook 130, NIST Handbook 133
- 5.2. NIST Handbook 130 – Laws and Regulations
  - 5.2.1. NIST Handbook 130 – General Provisions
  - 5.2.2. Packaging and Labeling Regulations
  - 5.2.3. Method of Sale Regulations
  - 5.2.4. Quality of Automotive Fuels and Lubricants
  - 5.2.5. Price Verification
- 5.3. NIST Handbook 133 – Package Net Contents Control
  - 5.3.1. Commodities – General
  - 5.3.2. Packages Labeled by Weight, Standard and Random
  - 5.3.3. Packages Labeled by Weight, Special Commodities
  - 5.3.4. Packages Labeled by Volume (Volumetric and Gravimetric Testing)
  - 5.3.5. Packages Labeled by Volume, Special
  - 5.3.6. Packages Labeled by Length/Area/Thickness
  - 5.3.7. Packages Labeled by Count
  - 5.3.8. Other Package Types
- 5.4. Test Purchases
- 5.5. E-Commerce

**Note:** Initial Verification has been intentionally been left off this listing and will be addressed later.

## Appendix B



**National Conference on Weights and Measures  
National Training Program  
CERTIFICATION DISCIPLINE  
for  
Retail Motor Fuel Devices  
Beta Exam – February 2010**

*Prepared by the NCWM Professional Development Committee*

The NCWM is offering a (beta) certification examination on the subject above. The examination will be taken on-line via the NCWM website. You must register with the NCWM and be granted a user authorization to access the test site. For registration information call NCWM at 402-434-4880 or email [info@ncwm.net](mailto:info@ncwm.net). Be sure to include the exam title in the subject line.

### **Format and Duration:**

The examination will be in three sections with a total of 50 questions and a 2 hour time limit to complete all three parts. The test will be given in one session and you may not log off and then attempt to return to that exam. You must complete each section before moving to the next section.

The exam is OPEN BOOK, and you may make use of any reference materials, training documents, and procedural guides at your disposal. You are expected to take the examination alone and may not receive assistance from any other person. You will be asked to affirm that at the conclusion of the examination.

Test instructions will be provided on-line. Since the test is electronically graded, the answer must be marked or answer typed correctly. The test questions will be either multiple choice, fill in the blank, or compliance/citation. For multiple-choice questions, you will be asked to pick the best answer from four options. For fill in the blank questions, you must enter the specific answer, typed correctly. For compliance/citation questions, you will be given information describing a situation and asked to assess compliance. Answer “yes” if the situation complies based on the information provided, otherwise provide the specific citation if the device does not comply. The form of the citation will typically be something like S.X.X. for a specification, T.X.X. for a tolerance, N.X.X. for a note, or UR.X.X. for a user requirement. Typically, you will be directed to the specific Handbook Code so reference to the code designations such as 1.10. for the General Code will usually not be necessary.

### **Subject of Examination:**

1. Segment 4.2. Introduction to Device Control – 15 questions  
These questions test for knowledge, understanding, and ability to apply the basic requirements applicable to all weighing and measuring devices. This may include questions on the selection, care and use of standards, the legal basis of NIST Handbook 44, the organization of that handbook, understanding of

Fundamental Considerations, knowledge of systems of measurement units, understanding and application of General Code requirements, and understanding of the NTEP program and Certificates of Conformance.

2. Segment 4.4. Dynamic Measuring Systems – General – 15 questions  
These questions test for knowledge and understanding of the basic technologies used in liquid measuring devices (LMD), understanding of classification of various LMD, ability to operate LMD and interpret indications, understanding and ability to apply code requirements from NIST Handbook 44 LMD Code, and understanding and ability to conduct basic tests of LMD and properly apply tolerances.
3. Segment 4.4.1. Retail Motor Fuel Dispensers (RMFD) – 20 questions  
These questions test for knowledge and understanding of the basic technologies used in RMFD, understanding and ability to apply code requirements from NIST Handbook 44 LMD Code for RMFDs, and understanding and ability to conduct basic tests of RMFDs and properly apply tolerances.

**Additional Information:**

For more details on the subject matter for this exam, refer to the individual curriculum segments as published on the Certification pages on the NCWM website at [www.ncwm.net/certification](http://www.ncwm.net/certification).

**Passing Score and Grading: (not applicable for Beta Exam)**

Weights and Measures regulatory officials	85 % (43 or more correct answers)
Service agents	75 % (38 or more correct answers)

You will be given a score for each section and total score immediately after completing the exam (or upon reaching the two-hour time limit). To protect the integrity of the test questions, you will not be advised of the specific questions you answered incorrectly. The PDC Committee will be reviewing incorrect answers in periodic reviews and will adjust scores in select cases if a question is judged invalid. If your score is affected, you will be notified.

If you wish to challenge any of the questions, there will be a section at the end of the examination where you can offer comments. You may also contact the NCWM PDC Committee through the NCWM staff via the website.

## Appendix C



### National Conference on Weights and Measures National Training Program Instructions for On-Line Certification Examinations (Beta Exam)

*Prepared by the NCWM Professional Development Committee*

#### **Exam Title: 4.4.1 Retail Motor Fuel Devices**

**Scope of Exam:** The exam will consist of three sections comprising 50 test questions as follows:

1. **Segment 4.2. Introduction to Device Control** – 15 questions  
These questions test for knowledge, understanding, and ability to apply the basic requirements applicable to all weighing and measuring devices. This may include questions on the selection, care and use of standards, the legal basis of NIST Handbook 44, the organization of that Handbook, understanding of Fundamental Considerations, knowledge of systems of measurement units, understanding and application of General Code requirements and understanding of the National Type Evaluation Program (NTEP) and Certificates of Conformance (CC).
2. **Segment 4.4. Dynamic Measuring Systems – General** – 15 questions  
These questions test for knowledge and understanding of the basic technologies used in liquid measuring devices (LMDs), understanding of classification of various LMDs, ability to operate LMDs and interpret indications, understanding and ability to apply code requirements from NIST Handbook 44 Liquid Measuring Device Code, and understanding and ability to conduct basic tests of liquid measuring devices and properly apply tolerances.
3. **Segment 4.4.1. Retail Motor Fuel Dispensers** – 20 questions  
These questions test for knowledge and understanding of the basic technologies used in retail motor fuel devices, understanding and ability to apply code requirements from NIST Handbook 44 Liquid Measuring Device Code for RMFDs, and understanding and ability to conduct basic tests of RMFDs and properly apply tolerances.

**Time Limit:** You must complete the test in one session limited to two (2) hours from the time the first question screen appears. Each Section also has a time limit and once you complete the last test question in a section, you will not be allowed to go back to any question in that section. Please be sure you have completed and checked each question in the section before answering the last questions. You should plan a dedicated two hour slot and may not log out and back in.

**Test Conditions:** The exam is *OPEN BOOK*, and you may make use of any reference materials, training documents, and procedural guides at your disposal. You are expected to take the examination alone and may

not receive assistance from any other person. You will be asked to affirm that at the conclusion of the examination.

**Navigation:** You may move ahead and back within a test section using the F8 (ahead) and F7 (back). This allows you to skip questions within a section and return to it later. Once you complete a section you will not be able to go back to any question in that section so be sure to answer all questions before leaving a section.

**Types of Questions:** Since the test is electronically graded, the answer must be marked or typed correctly. The test questions will be either *multiple choice*, *fill in the blank*, or *compliance/citation*.

*Multiple Choice* - You will be asked to pick the best answer from four options. If there is more than one correct answer, you must select the best option.

*Fill in the Blank* - You must enter the specific answer, typed correctly. When providing numerical answers, you will be informed of the number of decimal places to include in your answer.

*Compliance/Citation* - You will be given information describing a situation and asked to assess compliance. Answer “yes” if the situation complies based on the information provided, otherwise provide the specific citation if the device does not comply. DO NOT answer “NO” as it will be scored incorrect. The form of the citation will typically be something like S.X.X. for a specification, T.X.X. for a tolerance, N.X.X. for a note, or UR.X.X. for a user requirement. You will typically be directed to the specific Handbook Code so reference to the code designations such as 1.10 for the General Code will usually not be necessary.

**Scoring:** You will receive a score for each section and for the total exam. The score for the section will show the number of questions and the number answered correctly. The final score will include the number of questions, the total answered correctly, and the percent correct.

Passing score for Weights and Measures Professionals is 85 % (43 or more correct answers).

Passing score for Service and Repair Technicians is 75 % (38 or more correct answers).

**Comments and Challenges:** The NCWM Professional Development Committee encourages you to comment on the test to help us improve our product. If you wish to challenge any of the questions, contact the Committee via the NCWM e-mail at [info@ncwm.net](mailto:info@ncwm.net), and please include the exam title in the subject line.