SWMA Professional Development Committee (PDC)
2017 Annual Meeting Report

Gene Robertson, Chairman
Mississippi

4000   INTRODUCTION

The PDC (hereinafter referred to as "Committee") submits its Report to the Southern Weights and Measures Association (SWMA). The Report consists of the SWMA Agenda (NCWM Carryover and NEW items) and this Addendum. Page numbers in the tables below refer to pages in this Addendum. Suggested revisions to the handbook are shown in **bold face print** by **striking out** information to be deleted and **<u>underlining</u>** information to be added. Requirements that are proposed to be nonretroactive are printed in **bold-faced *italics*.**

Presented below is a list of agenda items considered by the SWMA and its recommendations to the NCWM Specifications and Tolerances Committee.

Subject Series List

Table A
Table of Contents

Reference Key	Title of Item	PDC Page

Appendix

Table B
Glossary of Acronyms and
Terms

Acronym	Term	Acronym	Term
ADDIE	Analysis, Design, Development, Implementation, and Evaluation	NEWMA	Northeastern Weights and Measures Association
ANSI	American Nation al Standards Institute	NIST	National Institute of Standards and Technology
BOK	Body of Knowledge	OWM	Office of Weights and Measures
CWMA	Central Weights and Measures Association	PDC	Professional Development Committee
ISO	International Standardization Organization	RSA	Registered Service Agents
ICE	Institute for Credentialing Excellence	SME	Subject Matter Expert
NCWM	National Conference on Weights and Measures	SWMA	Southern Weights and Measures Association
		WWMA	Western Weights and Measures Association

Details of All Items
(In order by Reference Key)

4100   EDUCATION

4100-1   I   Professional Certification Program

Professional certifications are offered in many industries as a means of demonstrating competence in a particular field of expertise. Certification may be a means of qualifying an individual for employment or a higher pay grade within a profession. The NCWM Professional Certification Program provides confidence that an individual has a strong understanding of U.S weights and measures standards as adopted by NCWM and published in NIST Handbooks, 44, 130, and 133.

Professional certification is available to NCWM members and non-members in the private sector and in government positions. Please note that the person taking the test must be an NCWM member to take the exams for free. Professional Certifications are now available in six areas covering (in order of deployment): Retail Motor Fuel Devices, Small Capacity Scales Class III, Package Checking – Basic, Medium Capacity Scales, Large Capacity Scales, and Vehicle-Tank Meters.

In December 2016, the Certification Coordinator delivered the materials for two new, basic competency exams. The NCWM staff is in the process of posting these exams to the testing website. The basic competency exams were created to provide an objective measure of development of new hires among regulatory officials and potentially test service agents for basic knowledge of weights and measures requirements. However, deployment of these new exams is on hold until the NCWM can establish a proctoring system to better ensure the integrity of the testing process. (See discussion later in this item.)

Work continues on additional certification exams. Priorities had been set to complete LPG Meters and Price Verification next. However, the Committee is elevating the priority of the Precision Scales exam ahead of the Price Verification exam in light of comments heard at the 2017 Interim Meeting.

The PDC is always looking for additional SME volunteers for all active projects. Any interested parties should contact Mr. Andersen through NCWM Headquarters at info@ncwm.net. The SME volunteers are the real heart of the certification program. The successful creation of these exams is dependent on willing volunteers.
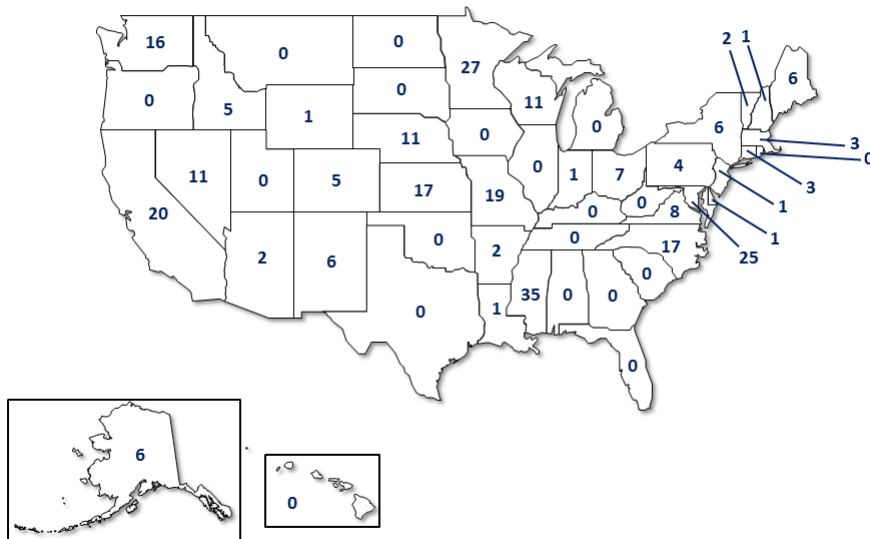
Status of Current Tests
The NCWM has issued 638 professional certificates from inception of the Professional Certification Program to September 30, 2016. Of the certificates issued, six have been issued to individuals in the private sector (three for small scales, two for package checking, and one for retail motor-fuel dispensers). The balance of the certificates has been issued to regulators. It is important to note that some of the early certificates issued for Retail Motor Fuel Devices have reached their 5-year expiration. Those who earned certificates over five years ago will need to seek recertification. This will also begin to impact certifications for Small Scales and Package Checking that will reach five years of activity this August. The Committee is working with NCWM staff to find ways to alert certificate holders of expiration in advance so they can plan for recertification.

Number of Certificates NCWM Has Issued as of the end of Fiscal Year 2016 (September 30th)					
	FY 11-12	FY 12-13	FY 13-14	FY14-15	FY 15-16
Count in Year	94	106	60	199	135
Cumulative	138	244	304	503	638

Certification (posted)	Certificates
RMFD (5/2010)	272
Small Scales (8/2012)	153
Package Checking (8/2012)	97
Medium-Capacity Scales (4/2015)	48
Large-Capacity Scales (4/2015)	30
Vehicle-Tank Meters (4/2015)	38

The following map includes 31 states with individuals holding an active certificate in one or more disciplines. Please note that the six active certificates issued to private sector individuals are included in these figures, e.g. the two certificates in Arkansas are private sector individuals. This data only includes certificates that have not expired as of September 30, 2016.

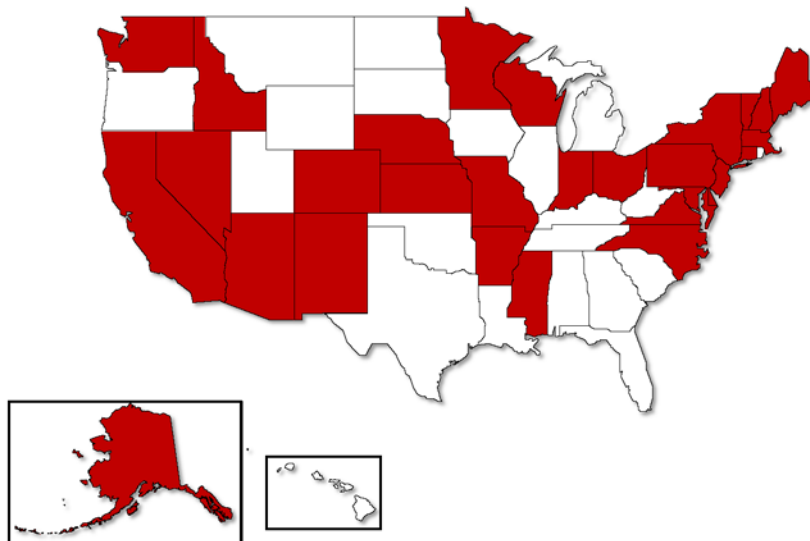Distribution of Certified Professionals per State
Updated: September 2016

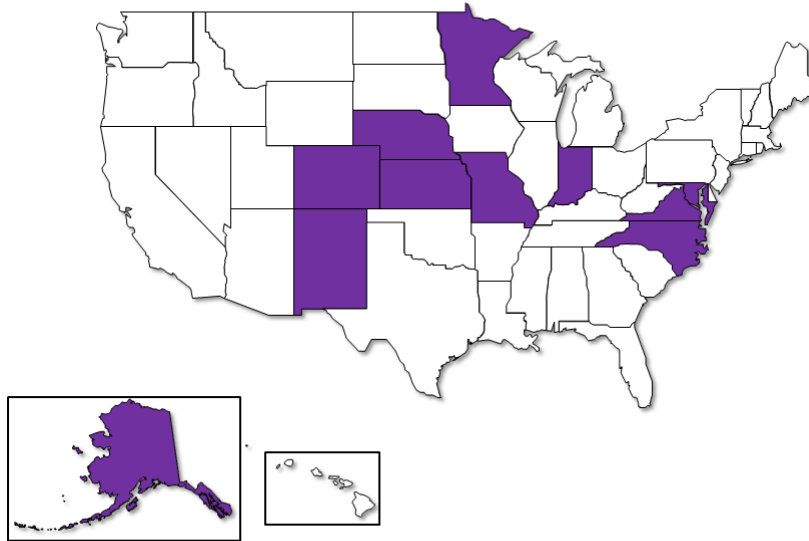| Number of Certificates Issued by State Since Program Inception*			
State	**Certificates**	**State**	**Certificates**
Missouri	100	Idaho	8
Minnesota	92	Maine	8
Maryland	65	Colorado	6
Mississippi	40	Pennsylvania	6
Nebraska	33	New York	5
Washington	26	Vermont	5
Wisconsin	26	Wyoming	5
North Carolina	24	Arkansas	3
Alaska	22	Delaware	3
Nevada	22	Arizona	2
California	21	Michigan	2
Virginia	21	Oregon	2
New Mexico	18	Georgia	1
Kansas	17	Louisiana	1
Connecticut	15	Montana	1
Ohio	13	New Hampshire	1
Indiana	12	West Virginia	1
Massachusetts	11		

* Includes expired certificates

The maps below show the states with individuals presently holding professional certification.
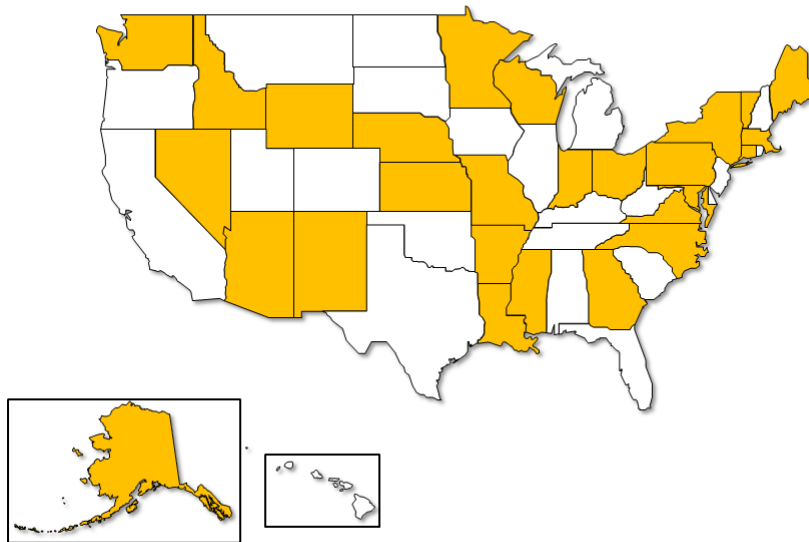
Distribution of Areas of Certification: Retail Motor Fuel Dispensing Systems
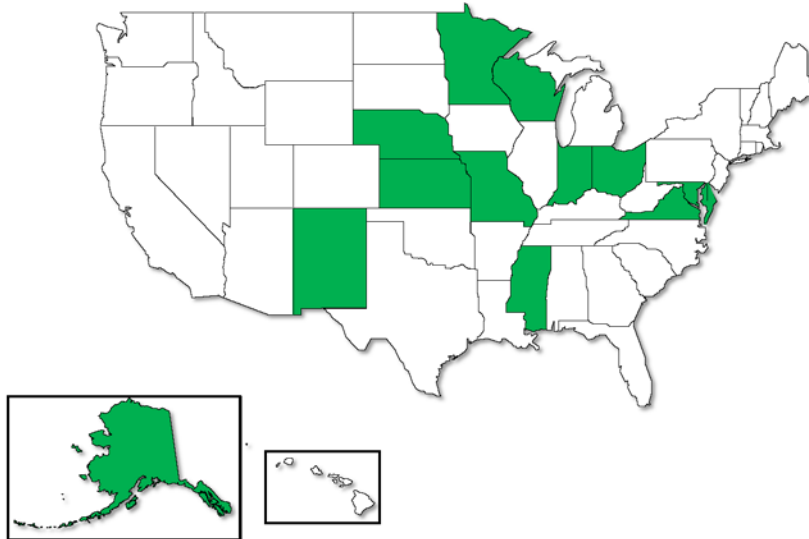Updated: September 2016

Distribution of Areas of Certification: Vehicle Tank Meters
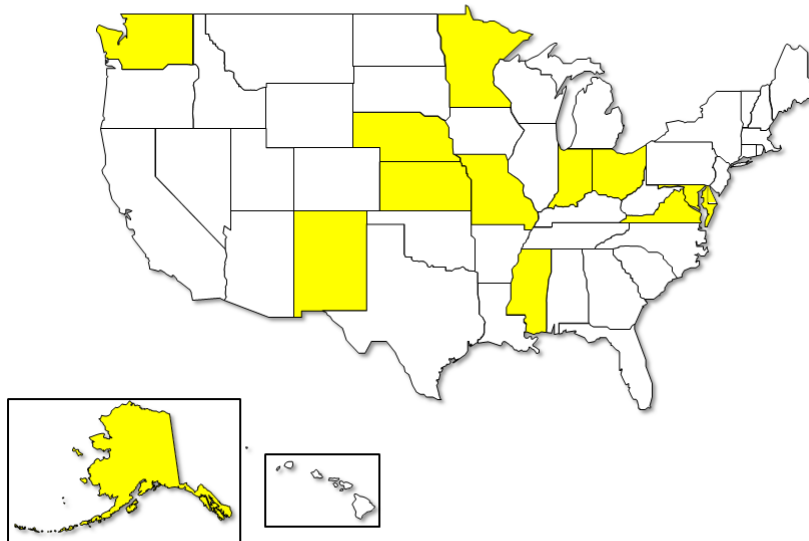Updated: September 2016

Distribution of Areas of Certification: Small Capacity Weighing Systems Class III
Updated: September 2016

Distribution of Areas of Certification: Medium Capacity Weighing
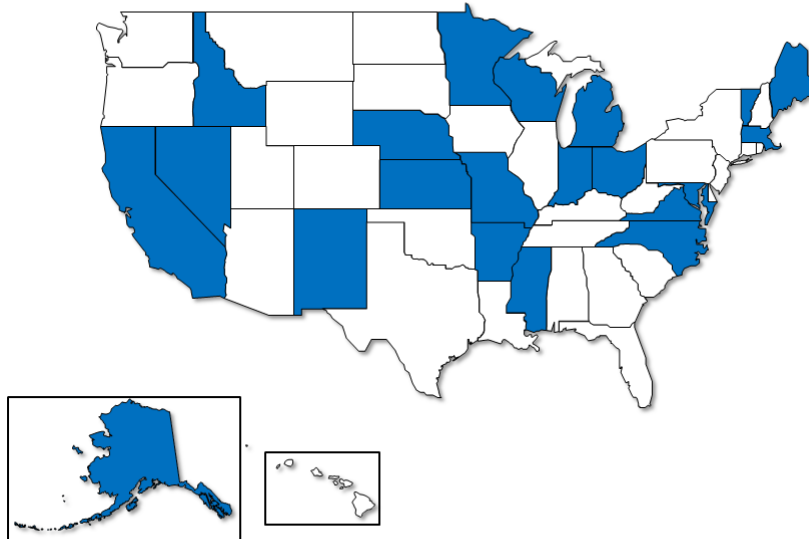Updated: September 2016

Distribution of Areas of Certification: Large Capacity Scales
Updated: September 2016

Distribution of Areas of Certification: Package Checking Basic
Updated: September 2016

The Committee continually works to improve the exams and the exam experience. A key goal is to make sure the exams stay meaningful and current as handbook changes are made. This includes an annual review of the current exams by the Certification Coordinator.

In order to obtain valuable feedback on the Certification Program, the Committee has created an exit survey which will be implemented using Survey Monkey. The questions on the exit survey will addresssome general assessment of the candidate's position and experience, mechanics of taking the exam, preparation for taking the exam, and general feedback (e.g., How did the candidate react to the content of the exam? Was it challenging? Was it too easy? Did the candidate feel the exam was fair?). The Committee will be working with NCWM staff to deploy the survey. When it is ready, we will create links to the survey from the NCWM website. We highly encourage candidates to take the survey after their exam experience.

Status of Current Projects

The Committee keeps the goal of accrediting the Professional Certification Program as an important long-term objective. The PDC endeavors to create an infrastructure that will eventually support accreditation. Proctoring is one of those infrastructure items we believe is necessary to accreditation. The Committee worked on a set of guidelines for proctoring. These guidelines impact both the candidate and the proctor. For the candidate, the guidelines will prohibit bringing materials into or taking materials out of the exam, having a cell phone activated, accessing the internet or other computer programs while taking the exam, etc. For the proctor, the guidelines will establish who can serve as a proctor (with approval of NCWM). The Committee is looking at allowing state weights and measures divisions to provide the proctor but is recommending that the proctor be someone other than an immediate supervisor. It could be someone from the personnel department or some independent third party. The Committee is also still considering using private proctoring services. The guidelines specify what the proctor must provide to the candidate, such as scrap paper, clean copies of pertinent NIST Handbooks, computer access, a quiet environment to take the exam, etc. It further requires the proctor to collect all scrap paper, as no written materials may be removed from the testing site in order to protect the integrity of the questions. The current draft of the guidelines appears in Appendix A.

A decision was made in the Fall of 2016 to establish cooling-off periods. We found that some candidates were taking the exam three or more times in rapid succession. The candidates were originally allowed two attempts to

pass the exam for one fee. Candidates were simply paying the fee again and retaking the exam, and for those who were members, the fee was zero. The Committee recommended to the NCWM Executive Director that we establish a cooling-off period of four weeks for professional certifications and two weeks for the basic competency exams. This will allow additional preparation time for the candidate before taking the exam again.

As mentioned earlier, the two basic competency exams were delivered to NCWM by the Certification Coordinator and are awaiting the proctoring piece before being implemented. The exams are each two-part with a general component covering Handbook 44 and a specific part covering the basic elements of the type of measurement. Each exam is based on 30 questions with a one-hour time limit. The exams are almost entirely multiple choice questions but candidates will find it beneficial to understand how to search Handbook 44 to find pertinent code sections. The weighing exam includes those devices in the Scales Code. The measuring exam includes devices in the Liquid Measuring Devices Code and the Vehicle-Tank Meters Code. Based on guidance from the Board, the exams apply equally to regulatory officials and service agents. The Committee hopes that states may use these exams in their service person registration programs.

While awaiting the implementation on proctoring, the Committee worked with NCWM to get the modules for the basic competency exams up on the website. The modules contain the learning objectives on which the exam is based. You can find all the existing modules on the NCWM website by pointing to Professional Certification on the top navigation bar. Then select Body of Knowledge. That page shows the curriculum workplan and you will find the active modules are hyperlinked. Click the one you want and then download to your computer. The NCWM modules are intended for wide distribution and may be freely copied.

The Committee appreciates the comments received at the 2017 Interim Meetings. Of note, Steve Giguere (ME) asked if there was a mechanism that would notify the supervisor with the results when an employee takes a certification exam? The Committee explained that the log-in credentials permit a candidate to go to the test site and access copies of all active certificates earned. Currently, this places the responsibility on the candidate to alert their supervisors. The Committee further committed to consider options to notify second parties.

Regional Association Comments:
The WWMA PDC continues to support this item as informational. The committee heard comments supportive of the testing programs during the open hearings and suggestions for using the program in RSA licensing.

The CWMA reported that the bulk of the comments were that people wanted to know the area of competency the participant got wrong for further study. People also said they wanted the results to be forwarded to state jurisdictions, and to employers. There was consensus that taking basic competency tests would make both service agents and regulatory officials more proficient in NIST Handbooks because instead of knowing just the details of a specific device, they will know where to look for the answers.

SWMA Report

Regional recommendation to NCWM on item status:
☐ Recommend as a Voting Item on the NCWM agenda ☒ Recommend as an Informational Item on the NCWM agenda ☐ Recommend as a Developing Item on the NCWM Agenda *(To be developed by source of the proposal)* ☐ Recommend Withdrawal of the Item from the NCWM Agenda (*In the case of new proposals, do not forward this item to NCWM*)
Comments and justification for the regional recommendation to NCWM: (*This will appear in NCWM reports*)
No comments were received.

4100-2   I   Training

The purpose of this item is to share best practices and approaches to training in response to the broad training needs of weights and measures jurisdictions and to serve as a link to various training materials on the web.

Tina Butcher (NIST OWM) has continued to provide updates on training provided to the weights and measures community by NIST OWM. At the 2016 NCWM Annual Meeting, Mrs. Butcher reported OWM provided 47 classes in the past 12 months, resulting in the awarding of more than 1,340 Continuing Education Units (CEUs). These classes involved both public and private sector participants (including other countries in SIM) in areas including Laboratory Metrology, Package Control, Price Verification, and Weighing and Measuring Devices. Similar statistics will be provided to the Committee at the end of the 2017 calendar year.

During and following the 2017 Annual Meeting, Mrs. Butcher provided the following update on the courses planned for the coming year. She noted that scheduled training is contingent on NIST OWM's budget and anyone interested in these courses should consult OWM's "Calendar of Events" at:

https://www.nist.gov/pml/weights-and-measures/about-owm/calendar-events

Packaging & Price Verification

NIST HB 133 –Checking the Net Contents of Packaged Goods, Basic:
- March 2017 – IL and NC (complete)
- October 23-27, 2017 – Sonoma, CA
- November 27-28, 2017 – Gaithersburg, MD (Industry Only)
- February 5-8, 2018 – San Diego, CA
- March 26-29, 2018 – Lebanon, MO
- April 16-19, 2018 – Montgomery, AL
- May 14-17, 2018 – Pompano Beach, FL

NIST HB 130 - Packaging & Labeling
- April 2017 (TX) and June 2017 (MD) (complete)
- September 25-28, 2017 – Burnsville, MN
- March 12-15, 2018 – Orange County, CA
- June 5-7, 2018 – Cleveland, OH

Price Verification
- May 2017 - NEWMA Annual Meeting (complete)
- October 10-11, 2017 – Little Rock, AR - SWMA Annual Meeting

Laboratory Metrology

Fundamentals of Metrology
- December 4-8, 2017 – Gaithersburg, MD

Mass Metrology Seminar
- October 23-November 3, 2017

Advanced Mass Seminar
- August 21-31, 2017 – Gaithersburg, MD

Balance & Scale Calibration & Uncertainties (User Uncertainties
- January 9-12, 2018 – Gaithersburg, MD

Webinars – August 2017 through October 2018
- Multiple webinars are being offered; see OWM Calendar of Events for a complete listing with dates.

Topics include:
- o   Contract Review
- o   Document Control & Record Keeping
- o   State Lab Annual Submission Process
- o   Internal Auditing Best Practices
- o   Conducting an Effective Management Review

Regional Measurement Assurance Programs
- Northeast Measurement Assurance Program (NEMAP)
  - o September 18-21, 2017 – Charleston, WV
- Southwestern Assurance Program (SWAP)
  - o October 2-5, 2017 – Topeka, KS
- Mid-America Measurement Assurance Program (MidMAP)
  - o October 16-19, 2017 – Lansing, MI

Weighing and Measuring Devices

Compressed Natural Gas Metering Systems
- April 2017 (UT) & June 2017 (IN) (complete)
- Spring 2018 – Sacramento, CA

LPG Liquid-Measuring Systems
- April 2017 – OR (complete)
- Spring 2018 – Sacramento, CA
- June 11-15, 2018 - OH

Retail Motor-Fuel Dispensers
- June 2017 – CA (complete)
- October 23-26, 2017 – Harrisburg, PA - PA W&M Association

Livestock and Animal Scales
- May 2017 – KS (complete)
- September 26-28, 2017 – WWMA Annual Meeting - AZ

Medium Capacity Scales
- May 2017 CWMA Annual Meeting (complete)

Mrs. Butcher reported that based on the number of registrants, only one of the Administrator Workshops (referenced during Committee discussions at the 2017 Interim Meeting) was held in Spring 2017.

Regional Association Comments:
The WWMA recommended keeping this item informational, recognizing the continued effort to increase our professional skills. The committee appreciates the financial support and partnership between NIST/OWM and NCWM.

SWMA Report
Regional recommendation to NCWM on item status: ☐ Recommend as a Voting Item on the NCWM agenda ☒ Recommend as an Informational Item on the NCWM agenda ☐ Recommend as a Developing Item on the NCWM Agenda *(To be developed by source of the proposal)* ☐ Recommend Withdrawal of the Item from the NCWM Agenda *(In the case of new proposals, do not forward this item to NCWM)*
Comments and justification for the regional recommendation to NCWM: (*This will appear in NCWM reports)*
No comments were received.

4100-3   I   Instructor Improvement

NIST OWM has provided legal metrology training for weights and measures jurisdictions and industry for many years, but does not have the resources to respond to the numerous training requests it receives. OWM has long recognized that there are many individuals with extensive legal metrology experience who have the skills needed to provide this type of training. OWM hopes to draw from this pool to develop trainers who can present schools with NIST, thus leveraging NIST resources; providing more timely classes; and providing a way to more broadly share the valuable expertise these individuals possess.

Several years ago, OWM renewed its efforts to develop trainers by providing a grant to the NCWM which is intended to pay travel costs of individuals to travel within their regions to conduct training and to participate in NIST training for trainers. This partnership has enabled NIST to bring in candidates for NIST-sponsored training such as "train the trainer" classes and to participate in NIST technical training schools. Through an application process, in collaboration with weights and measures directors and nominated training candidates, NIST has identified a group of people who are now working with NIST to develop the knowledge, skills, and abilities to work with NIST staff in presenting technical training schools. A number of candidates in the NIST Trainer Program have already served as co-instructors for NIST technical training schools and have done an excellent job. OWM sincerely appreciates the willingness of those trainers and their directors who have supported their participation to devote time to making these seminars successful.

NIST training seminars on field inspection topics are only held a limited number of times each year. This poses a challenge in sustaining regular interaction and involvement of NIST trainer candidates. NIST does not have the resources to develop and sustain the development of all the trainers it has invited to participate in the NIST trainer program activities and events held over the past several years; however, even if a candidate is not designated to participate as an instructor in a NIST seminar, they and their jurisdictions can benefit from the experience and the candidate can still provide valuable training in their jurisdiction and region.

A list of all people who have attended a NIST "Train the Trainer" class or associated event has been posted on the NCWM website. Many people on this list have attended NIST "train the trainer" events and workshops, but have not served as co-instructors for NIST classes and, in some cases, have not attended NIST technical training schools in the areas in which they are interested in serving as trainers. Conversely, there are people on this list who have attended the workshops and NIST technical training seminars and have also served as co-instructors in NIST training seminars. Because of the variations in experience levels of individuals on this list and because OWM has not authorized anyone (external to NIST) to independently present "NIST" classes and is still refining the program infrastructure, confusion has arisen in the weights and measures community regarding classes that these individuals may present on their own. NIST and NCWM are considering how to best depict these listings

to reflect the status of the trainers listed such that confusion can be avoided in the future

OWM appreciates the strong support of the NCWM, the PDC, the volunteer trainers, and their administrators in continuing to develop the NIST Trainer Program. OWM will continue to provide the Committee with updates on its progress as well as continue to collaborate with and support the Committee in its work.

The Committee continues to hear comments from States expressing appreciation for the NCWM Professional Certification Program and the NIST Training Program. The Committee also heard favorable comments about the training materials and tools provided by NIST, including a video on testing retail motor-fuel dispensers (RMFDs). As noted in Item 410-2, the NIST video is divided into segments focusing on specific parts of the RMFD test procedure that can be used to supplement and enhance instructor-led training. The video can be accessed through OWM's home page or by going directly to the following link: http://www.nist.gov/pml/wmd/lmdg/training-materials.cfm.

The Committee has reiterated multiple times in the past that the responsibility for training employees rests with individual organizations (weights and measures jurisdictions and industry alike). While NIST and other training providers offer excellent sources of training and training materials, organizations must develop and manage their own training programs, including developing trainers; establishing individual development plans for employees; and identifying strategies for continually assessing and responding to training needs. The Committee recognizes that NIST OWM cannot possibly train all of the weights and measures inspectors in the country. The state and municipal jurisdictions have ultimate responsibility for training and qualifying their personnel. To fulfill this responsibility, jurisdictions should be making individual plans to maintain or bolster their training efforts. NIST OWM should be viewed as one vital resource to support that effort. The Professional Development Committee is another resource. The Committee has created and posted on its website, the "Body of Knowledge" to establish uniform learning objectives for weights and measures professionals. In addition, the Committee has posted a Model Field Training Program document on its website. This program outlines methods to evaluate and document training and offers guidance on training new inspectors and taking steps to ensure their ongoing development.

These initiatives require competent and qualified trainers and a centralized management plan within the jurisdiction. The Committee is continuing to work, in partnership with NIST OWM, to identify the basic competencies of those trainers and training managers so that jurisdictions can find the right people to manage and deliver training internally. It's not enough just to be technically competent in a subject area to be a good trainer or to effectively manage a training program. It takes other tools, such as:

- ability to assess employee competence and training needs,
- ability to create learning materials from technical material,
- ability to use adult learning techniques adapted to individual and group needs,
- ability to plan training activities and find appropriate training venues,
- ability to find creative ways to deliver training with tight budgets, and
- ability to adapt the overall training program to best serve jurisdiction goals

In 2015 OWM developed a NIST Instructor Training Program Instructor Competency Assessment and Feedback Instrument that can be used as a self-assessment tool by instructors and assist them in identifying and setting goals to strengthen and develop their skills as trainers. Included in this assessment tool is a broad list of competencies for trainers based on a model developed by the U.S. Department of Education (see http://www.pro-net2000.org/CM/content_files/70.pdf for details). For the purposes of serving as a NIST OWM trainer, only a subset of these competencies may be necessary, although some trainers participating in the NIST Trainer Program may be required to master more of them to meet broader training responsibilities within their own agencies. See past Committee reports for additional background.

As previously reported, NIST OWM is authorized by IACET to issue "Continuing Education Units" for certain training seminars and, as part of this authorization, there are certain provisions that an instructor must follow in order to meet these requirements. NIST Certificates and the accompanying CEUs can only be issued if these criteria

are met; this includes ensuring that the material is presented consistent with the learning objectives and interpretations specified by NIST OWM and in the same time frame. OWM staff trainers have completed IACET training courses and are familiar with the procedures that OWM has implemented to ensure compliance with IACET-related requirements for NIST training courses. External trainers in the NIST Trainer Program must also understand these provisions. OWM has presented several short webinars to help its external trainers obtain the necessary training and will continue to seek opportunities to provide this training to those who have not yet completed it.

At the 2016 Annual Meeting, Mrs. Butcher reported that NIST is making an additional $100,000 grant to NCWM to support travel and training events for the NIST Trainer program. OWM continues to work on formalizing the NIST Trainer Program. At the 2017 Annual Meeting, Mrs. Butcher updated the Committee on progress on "Instructor Improvement" in the NIST Trainer Program. She noted that OWM is continuing to work on the infrastructure of the program, including documenting:
- Procedures for Selection, Evaluation, and Feedback to Instructors
- Instrument - Instructor Competency Assessment and Feedback – Overall
  o Based on US Dept of Education model for overall development
- Instrument - Instructor Competency Assessment - specific courses
- Criteria for Developing Participants in NIST Instructor Training Program and Use of the NIST-NCWM Training Grant
- Instructor Agreement

She noted that OWM information shared this information with NCWM Board of Directors at their meeting May 2017 as a follow-up to discussions and a request at the Board's January 2017 Meeting. She noted that OWM is beginning to implement these tools with its external trainers and OWM has made continual adjustments to the assessment documents based on experience. For example, the instrument which is used to provide an overall assessment of a trainer's professional competencies can be used to help a trainer identify personal goals for improving their competencies as a trainer, including both those that NIST would require of its trainers and those that might be required of them in their own jurisdiction. However, the instrument proved overly complex for an individual learning event. Consequently, Georgia Harris (OWM) developed a scaled down version of the instrument that was tailored more toward individual learning events, but that still linked back to the overall competencies. This instrument has been used in at least two classes and a revised version will be used in courses coming up in fall 2017.

Mrs. Butcher reported that 10 of OWM's 44 training sessions in 2016 included non-NIST instructors assisting in the NIST OWM classes. Travel for external trainers serving as co-instructors in these classes is funded using travel from a grant provided by NIST to NCWM. She expressed appreciation to NCWM for its continued assistance in administering the grant and helping make the process of getting the trainers to these courses as smooth as possible.

Mrs. Butcher also reported that several instructor training webinars had been offered to external trainers, including webinars on Blooms Taxonomy; learning objectives; and the ADDIE model. She noted that one of NIST's external trainers audited a "Train-the-Trainer" course offered by the American Management Association and OWM is considering if this might be a course that could be used by prospective NIST instructors in their own personal development as trainers. Mrs. Butcher noted that OWM is continuing to involve external trainers in its training efforts and has been increasing their responsibilities in these seminars. She emphasized the significant impact that the external trainers have had on the success of the NIST courses and expressed appreciation for the trainers who give of their time and expertise and the directors who allow the trainers time away to assist with these courses.

Regional Association Comments:
The WWMA supports the ongoing efforts of the NIST/OWM Train the Trainer Program.

The CWMA reported that members expressed the desire for NIST to complete certification of some of the Train-the-Trainer participants so that they would be available to independently lead more trainings in more settings. Comments were also heard that jurisdictions would like multiple routes to meet NIST OWM advanced course prerequisites. Examples would be equivalent training from other trainers or training organizations, or competency tests.

SWMA Report
Regional recommendation to NCWM on item status: ☐ Recommend as a Voting Item on the NCWM agenda ☒ Recommend as an Informational Item on the NCWM agenda ☐ Recommend as a Developing Item on the NCWM Agenda *(To be developed by source of the proposal)* ☐ Recommend Withdrawal of the Item from the NCWM Agenda *(In the case of new proposals, do not forward this item to NCWM)*
Comments and justification for the regional recommendation to NCWM: (*This will appear in NCWM reports***)**
No comments were received.

4100-4   I   Recommended Topics for Conference Training

The Board of Directors has charged the Committee with recommending appropriate topics for the technical sessions at future annual meetings. The Board of Directors asks the PDC to review and prioritize possible presentation topics and to submit those to the NCWM Chairman. The Chairman will coordinate with NCWM staff to secure presenters.

The following is a list of technical presentations made at the NCWM since 2009. Presentations given since 2010 are available at www.ncwm.net/meetings/annual/archive.

- Planning and Coordinating a National Market Place Survey (Ms. Rachelle Miller, WI 2017);
- The Life Cycle of Petroleum from Well to Retail (Mr. Prentiss Searles, API 2017);
- The United States Mint at Denver – Gold, Coins and Embezzlement (Mr. Thomas Fesing, 2016)
- Understanding Transportation Network Systems (Ms. Andrea Ambrose Lobato, Lyft and Mr Bob O' Leary, Uber 2016)
- Regulatory Consideration for Legalized Marijuana (Ms. Julie Quinn, MN and Mr. Nick Brechun, CO 2016)
- Motor Oil Quality Violations (Mr. Tom Glenn, Petroleum Quality Institute of America, 2014);
- Making Sense of Electronic Receipts (Mr. Justin Hotard, Vice President and General Manager, NCR Corporation, 2014);
- LNG & CNG Motor Fuel – A Technical Briefing from Industry (Mr. Doug Horne, President CVEF, Mr. Zack Wester, Blu, Mr. Jeff Clarke, NGVA, 2014);
- Taximeter Technology Advancements (Mr. Matt Daus, International Association of Transportation Regulators, 2013;
- Advanced Vehicles and Fuel Quality (Mr. John M Cabaniss, Jr., Association of Global Automakers, 2013);
- Economic Justification and Demonstrating Value of Weights and Measures (Mr. Tim Chesser, Arkansas Bureau of Standards, 2012);
- Conducting Effective Marketplace Surveys and Investigations (Ms. Judy Cardin, Wisconsin Weights and Measures, 2012);
- Public Relations and Customer Service as Regulators (Mr. Doug Deiman, Alaska Division of Measurement Standards/ CVE, 2012);
- An Overview of Unit Pricing in the United States (Mr. David Sefcik, NIST OWM, 2011);
- Grocery Unit Pricing in Australia (Mr. Ian Jarratt, Queensland Consumers Association, 2011);
- Grocery Unit Pricing in Canada (Mr. Ian Jarratt, Queensland Consumers Association, 2011);
- The U.S. Hydrogen Measuring System: The Turning Point? (Ms. Kristin Macey, California Division of Measurement Standards, 2011);
- Corrosion in Ultra Low Sulfur Diesel Underground Storage Systems (Mr. Prentiss Searles and Ms. Lorri Gainawi, American Petroleum Institute, 2010);

- Risk-Based Inspection Schemes (Mr. Henry Oppermann, Weights and Measures Consulting, LLC, 2010);
- Diesel Exhaust Fluid (DEF) (Mr. Gordon Johnson, Gilbarco, Inc., and Mr. Randy Moses, Wayne, 2009);
- Fuel Volatility and Ethanol Blending (Mr. Jim McGetrick, BP Products, 2009);
- Investigative Techniques (Mr. Michael Cleary, Retired, 2009);

During open hearings at the 2016 Interim Meeting, the Committee heard a suggestion from Kristin Macey (CA DMS) for a training session on transportation network systems. Doug Musick (KS) commented that this type of technology is showing up in applications other than just passenger transportation and suggested that training in GPS-based measuring systems in general would be beneficial. He noted that his jurisdiction is encountering a large number GPS-based measuring systems being used in assessing charges for the sale and application of crop fertilizers and other treatments and he noted that the monetary impact is significant.

The Committee also heard comments from Jim Pettinato (FMC), Chairman of the NTEP Software Sector, who noted that training on issues related to inspection of software-based systems may be beneficial to weights and measures jurisdictions. He noted that, with the current progress of proposals through the NCWM process, the Sector is wrapping up its initial work and suggested that the Sector and its members might be able to assist in training on legal metrology issues relative to software-based weighing and measuring systems. Julie Quinn (MN) commented that this assistance might be particularly helpful in assisting weights and measures jurisdictions in understanding and educating inspectors and service personnel on audit trails used in these devices, and she noted that audit trail training is the most frequently requested training topic in her jurisdiction.

The Committee appreciates the input and ideas that it has received regarding suggested training topics. Based on the comments received during its open hearings, comments from the fall 2015 regional association meetings, past suggestions, and discussions during its Interim Meeting work sessions, the Committee proposes that the BOD consider offering technical presentations on the following topics:

- Verifying Compliance of Software-Controlled Weighing and Measuring Systems
  - This might include the verification of software versions, security, and other metrologically significant issues
- Understanding Transportation Network Systems
- GPS-Based Measuring Systems Used in Applications Other Than Passenger Transport
- Vehicle-Tank Metering Systems "Flush Systems"
- Credit/Debit Card Skimmers

The Committee also discussed the audience that is typically present at NCWM Annual and Interim Meetings, noting that inspectors and service personnel are not always able to participate in these meetings. The Committee believes it would be beneficial not only to offer training on key issues such as those listed above at the NCWM meetings, but to have the training made available at regional and state weights and measures association meetings where more inspectors and service personnel would be likely to attend. Some aspects of the training might need to be tailored more toward field inspection that weights and measures administration, but much of the content should be the same. The Committee would like to collaborate with regional weights and measures associations to suggest that similar training be provided at the regional level.

At the 2016 NCWM Annual Meeting, the Committee suggested that technical training on safety programs be included at Regional and National Meetings, including an update provided by Julie Quinn at the 2016 Annual Meeting. The Committee received no additional suggestions or comments regarding proposed training topics.

Regional Association Comments:
The WWMA PDC recommends continued support for ongoing training opportunities.

The CWMA recommended two topics for the CWMA annual meeting which might also be of interest to the NCWM:
1. A panel on blender pumps relating to flex fuel and biodiesel blending. Topics to include dispenser labeling, blend ratios, proper sampling, flow rates and other mechanical issues affecting accuracy.
2. Protecting employees from active shooters and interpersonal violence in remote locations.

The SWMA received comment from Russ Lewis, representing API, who offered to provide A to Z distribution awareness training on petroleum fuels to all regions. This offer was received well by the committee and members.

NEWMA received a suggestion for "Software Systems" training. At a minimum, the regulator was interested in a basic training for audit trails since there is advancing and changing technologies.

SWMA Report
Regional recommendation to NCWM on item status: ☐ Recommend as a Voting Item on the NCWM agenda ☒ Recommend as an Informational Item on the NCWM agenda ☐ Recommend as a Developing Item on the NCWM Agenda *(To be developed by source of the proposal)* ☐ Recommend Withdrawal of the Item from the NCWM Agenda (*In the case of new proposals, do not forward this item to NCWM*)
Comments and justification for the regional recommendation to NCWM: (*This will appear in NCWM reports*)
No comments were received.

4200   PROGRAM MANAGEMENT

4200-1   I   Safety Awareness

One of the goals of the PDC is to educate jurisdictions on safety issues and to provide resources to help them implement effective safety and health management programs. The Committee intends to use the safety page on the NCWM website (https://www.ncwm.net/resource/safety) as a place for states to share information and resources to help them address each of the major steps in creating and maintaining an effective safety program.

One such resource is the recently published draft of OSHA's Safety and Health Management Program Guidelines (https://www.osha.gov/shpmguidelines/SHPM_guidelines.pdf). This 44-page document is written in plain language and is aimed at helping small organizations establish, maintain, and improve safety and health management programs.   It provides guidance on the seven core elements of safety and health program management:

- Management Leadership
- Worker Participation
- Hazard Identification and Assessment
- Hazard Prevention and Control
- Education and Training
- Program Evaluation and Improvement
- Coordination and Communication on Multiemployer Worksites

Ms. Julie Quinn (MN), PDC Safety Liaison, reported on the results of the 2017 safety survey, which covers incidents occurring in 2016. The top three causes of lost or restricted time for the second year in a row were:

- **Lifting/twisting/bending 54.5% - 6 incidents**
  - Soft tissue injuries (3), Back or neck injuries (3)
  - Lost days – 60+ days (2), 21-60 days (2), 0-5 days (2)
  - Restricted days – 60+ days (1), 16-20 days (1), 6-10 days (1), 0-5 days (3)
- **Slips/trips/falls 18.2% - 2 incidents**
  - Soft tissue injuries (1), broken bones (1)
  - Lost days – 21-60 days (1), 6-10 (1)
  - Restricted days – 16 – 20 days (1), 6-10 days (1)
- **Vehicle accidents 18.2%, 2 incidents**
  - Soft tissue injuries (2)
  - Lost days 0-5 (2)
  - Restricted days – none

Ms. Quinn also reported the NCWM Safety Task Group had its inaugural meeting on Sunday, July 16th. Their first meeting focused on the economic impact of safety. At this meeting, the Task Group decided to add one more question to the 2018 survey to track those "near–miss" incidents which had property damage costs or other expenses associated with them.

The Task Group also began developing a spreadsheet which will help agencies track information to be included in the survey. This includes information such as the cost of incidents resulting in lost and restricted days; near-miss incidents, which do not result in lost or restricted time beyond the initial day of injury but result in property damage, medical expenses, or other costs; and other information.

The Committee expresses appreciation to the members of the Safety Task Group for their willingness to volunteer for this important work.
  - Julie Quinn (MN), Chair
  - Jason Flint (NJ)
  - Georgia Harris (NIST OWM)
  - Elizabeth Koncki (MD)
  - Matt Maiten (Santa Barbara County, CA)
  - Brenda Sharkey (SD)
  - Mike Sikula (NY)
  - Tisha Arriaga (Marathon Petroleum)
  - Bill Callaway (Crompco)
  - Remy Cano (Northwest Tank and Environmental Services, Inc.)
  - Joe Grell (Rice Lake Weighing Systems, Inc.)
  - Brad Fryburger (Rinstrum, Inc.)
  - Robert LaGasse (Mulch and Soil Council)
  - John Lawn (Rinstrum, Inc.)

Other potential items for future inclusion on the safety page include links to resources on:
- OSHA consultation services
- Job hazard analysis
- Field level hazard analysis
- Hierarchies of hazard control
- Safety training resources

Each safety program is unique to its organization. Each agency is responsible for designing, implementing, and maintaining its own safety program. Resources provided on the web page are intended only to assist agencies as they develop and improve their own safety programs. Safety is not only first; it is first, last, and always. The work of maintaining and improving a safety program never ends.

Currently the NCWM safety page houses the list of regional safety liaisons and an archive of past safety articles.

Regional Safety Liaisons:

Central Weights and Measures Association (CWMA):
Ms. Julie Quinn, Minnesota Weights and Measures Division

Northeastern Weights and Measures Association (NEWMA):
Mr. Michael Sikula, New York Bureau of Weights and Measures

Southern Weights and Measures Association (SWMA):
Ms. Elizabeth Koncki, Maryland Department of Agriculture

Western Weights and Measures Association (WWMA):
Mr. Brett Gurney, Utah Department of Agriculture and Food

Regional Association Comments:
The WWMA PDC continues to support the importance of safety and the work being done by NCWM.

The CWMA received comment that people would like to hear from an OSHA consultant at the NCWM meeting. The committee encouraged all states to participate in the next safety survey. Private companies are also urged to participate. Government agencies will be invited to participate via the Directors list service or private companies should contact Don Onwiler at the NCWM so they can be included in the email invitation.

NEWMA expressed appreciation to Julie Quinn (MN) for the fine job she did compiling the safety information she received, and the report she presented at the 2016 NCWM Annual Meeting. Individuals from NEWMA that were in attendance, agreed that Julie's presentation was very well done and contained valuable information. It was stated that it was disappointing that the PDC agenda review took place so late in the day and there were so few individuals in attendance. Because of this situation, NEWMA heard several comments in favor of changing the order of the Standing Committee's agenda reviews so committees have equal exposure. Jimmy Cassidy, NCWM Chair Elect, was in attendance and supported the concept of changing the order of the Committee's agenda reviews.

SWMA Report
Regional recommendation to NCWM on item status: ☐ Recommend as a Voting Item on the NCWM agenda ☒ Recommend as an Informational Item on the NCWM agenda ☐ Recommend as a Developing Item on the NCWM Agenda *(To be developed by source of the proposal)* ☐ Recommend Withdrawal of the Item from the NCWM Agenda *(In the case of new proposals, do not forward this item to NCWM)*
Comments and justification for the regional recommendation to NCWM: (*This will appear in NCWM reports*)
No comments were received.

Mr. Gene Robertson, Mississippi | Committee Chair
Mr. Robert McGee, South Carolina | Member
Mr. Philip Wright, Texas | Member
Mr. Chester Watson, Kentucky | Member
Mr. Hunter Hairr, North Carolina | Member

Professional Development Committee

Appendix A

Draft Guidelines for Proctoring Professional Certification Exams
Revised 12/9/2016

Rules for the Candidate

- Exams are Open Book but limited to the following:
  1) NIST Handbooks 44, 133, and/or 130, as appropriate to the exam.   Handbooks must be clean copies, without margin notes or highlights.
  2) NIST Examination Procedure Outlines. EPO's must also be clean copies.
- All questions on the exam are copyrighted by the NCWM. NO copying or sharing of the questions or answers is permitted in any form without expressed written approval of NCWM.
- Calculators may be used for the exam if they have been approved or supplied by the proctor. Approved models may have scientific and statistical functions and be capable to store numeric values. Programmable calculators are not permitted, i.e., capable of storing multiple operation functions and calculation sequences.
- While taking the NCWM exam, candidates are not permitted to:
  o Receive assistance from any other person in answering questions;
  o Access email, software applications, apps, or websites other than the NCWM testing service;
  o Use or operate cameras, cell phones, or memory devices, such as flash drives; or
  o Rewrite or copy questions or answers, in whole or in part. Candidates may use note paper, provided by the proctor, to perform calculations. All paper will be collected by the proctor at the end of the exam and will be destroyed.
- Candidates shall not write in the reference materials provided by the proctor and shall return any computers, calculators, or reference materials provided by the proctor in good condition.

Qualifications for Proctors

- Independent party, e.g., Human Resources representative, or an individual with limited conflict of interest and is removed from direct weights and measures training responsibilities, e.g., Administration;
- Chosen by the State or local jurisdiction; and
- Approved by NCWM.

Rules for the Proctor

- Sign an agreement with NCWM acknowledging responsibilities and duties as a proctor.
- Provide a suitable environment for the candidate to take the exam and where the candidate's activities can be closely monitored. Space should be free from outside noise, interruptions, etc.
- Provide a computer with internet capability for the exam. Under certain conditions, an approved and suitable computer may be provided by the candidate for exam use.
- Verify that the copies of reference materials used by the candidate are clean and free of margin notes or highlights. Exams are Open Book but limited to the following:
  1) NIST Handbooks 44, 133, and/or 130, as appropriate to the exam
- 2) NIST Examination Procedure as applicable to the test, and the Examination Procedure Outline(s) for devices included in the exam Announcement covered by the exam.
- Provide 3 sheets of blank copy paper for calculations. Additional sheets may be requested if required.
- Approve candidate's calculator or supply an 8-digit scientific calculator with statistical functions for mean and standard deviation. Approved models may have scientific and statistical functions and may store values in memory. Programmable calculators are not permitted, i.e., capable of storing multiple operation

functions and calculation sequences. If the calculator is provided by the proctor, ensure the candidate has time to become familiarized with the operations before the exam begins.

<u>Rules for the Proctor (cont.)</u>

- Access the NCWM testing service through the NCWM website and enter the log-in credentials for the candidate.
- During the exam, the proctor shall ensure the candidate:
    - Does not receive assistance from any other person in answering the exam questions;
    - Does not access email, software applications, apps, or websites other than the NCWM testing service;
    - Does not use or operate cameras, cell phones, or memory devices such as flash drives while taking the NCWM exam;
    - Does not rewrite or copy questions or answers, in whole or in part; or
    - Uses only note paper provided by the proctor to perform calculations.
- Answer questions from the candidate only with regard to the operation of the computer or the calculator provided by the proctor.
- After the candidate completes the exam, collect and account for all paper provided to the candidate and destroy any paper written on by the candidate.
- Ensure all computers, calculators, and reference materials provided by the proctor are returned in good condition.