

Professional Development Committee (PDC) 2017 Interim Meeting Report

Stacy Carlsen, Marin County, California
Committee Chair

4000 INTRODUCTION

The PDC Committee (hereinafter referred to as the “Committee”) submits this Committee Interim Report for consideration by National Conference on Weights and Measures (NCWM). This report contains the items discussed and actions proposed by the Committee during its Interim Meeting in San Antonio, Texas, January 8-11, 2017. The report will address the following items in Table A during the Annual Meeting. Table A identifies the agenda items by reference key, title of item, and page number and addresses the appendices by appendix designations and page number. The acronyms for organizations and technical terms used throughout the report are identified in Table B. The first three digits of an item’s reference key are assigned from the Subject Series List. The status of each item contained in the report is designated as one of the following: **(D) Developing Item:** the Committee determined the item has merit; however, the item was returned to the submitter or other designated party for further development before any action can be taken at the national level; **(I) Informational Item:** the item is under consideration by the Committee but not proposed for Voting; **(V) Voting Item:** the Committee is making recommendations requiring a vote by the active members of NCWM; **(W) Withdrawn Item:** the item has been removed from consideration by the Committee.

Some Voting Items are considered individually; others may be grouped in a consent calendar. Consent calendar items are Voting Items that the Committee has assembled as a single Voting Item during their deliberation after the Open Hearings on the assumption that the items are without opposition and will not require discussion. The Voting Items that have been grouped into consent calendar items will be listed on the addendum sheets. Prior to adoption of the consent calendar, the Committee will entertain any requests from the floor to remove specific items from the consent calendar to be discussed and voted upon individually.

Committees may change the status designation of agenda items (Developing, Informational, Voting, and Withdrawn) up until the report is adopted, except that items which are marked Developing, Informational or Withdrawn cannot be changed to Voting Status. Any change from the Committee Interim Report (as contained in this publication) or from what appears on the addendum sheets will be explained to the attendees prior to a motion and will be acted upon by the active members of NCWM prior to calling for the vote.

An “Item Under Consideration” is a statement of proposal and not necessarily a recommendation of the Committee. Suggested revisions are shown in **bold face print** by ~~striking-out~~ information to be deleted and underlining information to be added. Requirements that are proposed to be nonretroactive are printed in ***bold faced italics***. Additional letters, presentations and data may have been part of the Committee’s consideration. Please refer to <https://www.ncwm.net/meetings/annual/publication-16> to review these documents.

All sessions are open to registered attendees of the conference. If the Committee must discuss any issue that involves proprietary information or other confidential material; that portion of the session dealing with the special issue may be closed if (1) the Chairman or, in his absence, the Chairman-Elect approves; (2) the Executive Director is notified; and (3) an announcement of the closed meeting is posted on or near the door to the meeting session and at the registration desk. If possible, the posting will be done at least a day prior to the planned closed session.

Note: It is policy to use metric units of measurement in publications; however, recommendations received by NCWM technical committees and regional weights and measures associations have been printed in this publication as submitted. Therefore, the report may contain references to inch-pound units.

Subject Series List

Introduction	4000 Series
Education.....	4100 Series
Program Management	4200 Series
Other Items	4300 Series

**Table A
Table of Contents**

Reference Key	Title of Item	PDC Page
4000 INTRODUCTION		1
4100 EDUCATION		3
4100-1 I Professional Certification Program		3
4100-2 I Training.....		10
4100-3 I Instructor Improvement.....		11
4100-4 I Recommended Topics for Conference Training		14
4200 PROGRAM MANAGEMENT		15
4200-1 I Safety Awareness		15

Appendix

A Item 4100-1: Draft Guidelines for Proctoring of Professional Certification Exams	A1
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**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 National 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

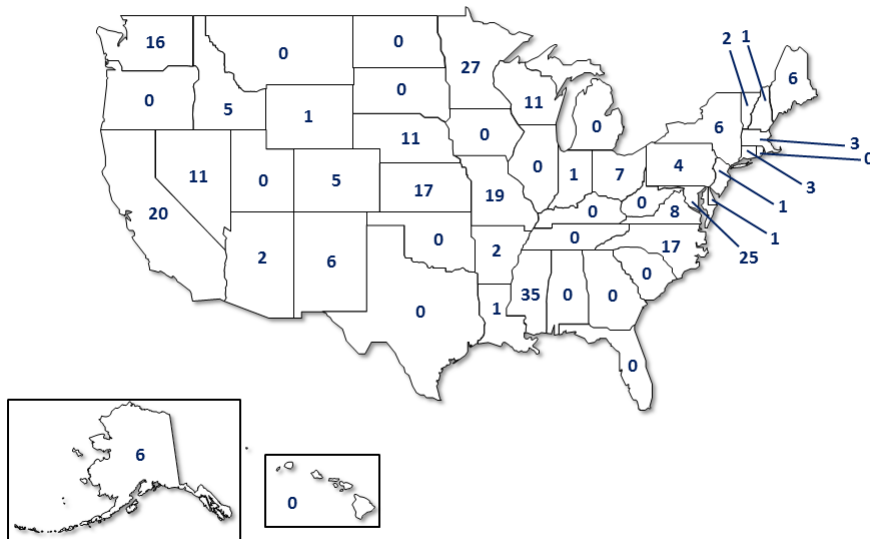
The NCWM has issued 638 professional certificates from inception of the Professional Certification Program to September 30, 2016. Of the certificates issued, six have been issued to individuals in the private sector (three for small scales, two for package checking, and one for retail motor-fuel dispensers). 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 30 th)					
	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

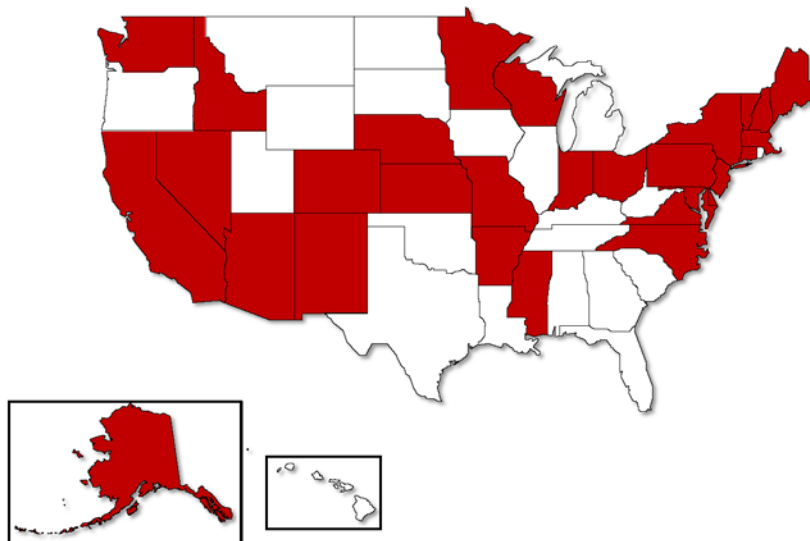


Number of Certificates Issued by State Since Program Inception*			
State	Certificates	State	Certificates
Missouri	100	Idaho	8
Minnesota	92	Maine	8
Maryland	65	Colorado	6
Mississippi	40	Pennsylvania	6
Nebraska	33	New York	5
Washington	26	Vermont	5
Wisconsin	26	Wyoming	5
North Carolina	24	Arkansas	3
Alaska	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		

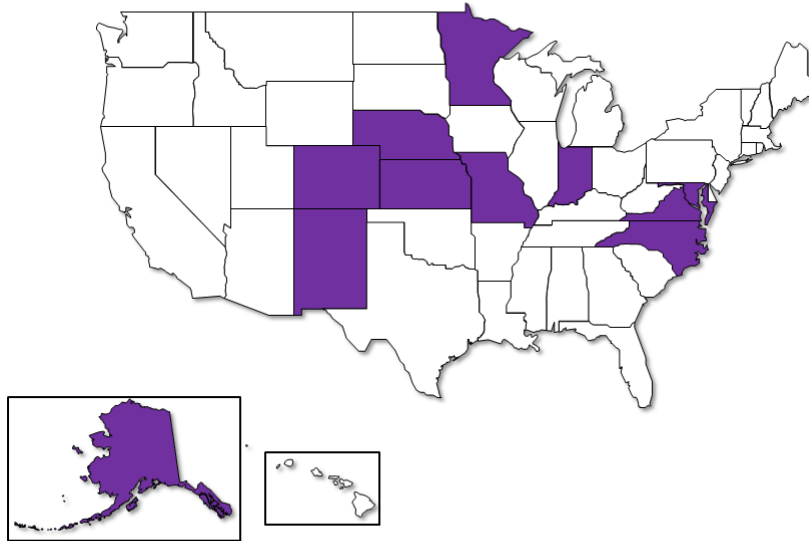
* Includes expired certificates

The maps below show the states with individuals presently holding professional certification.

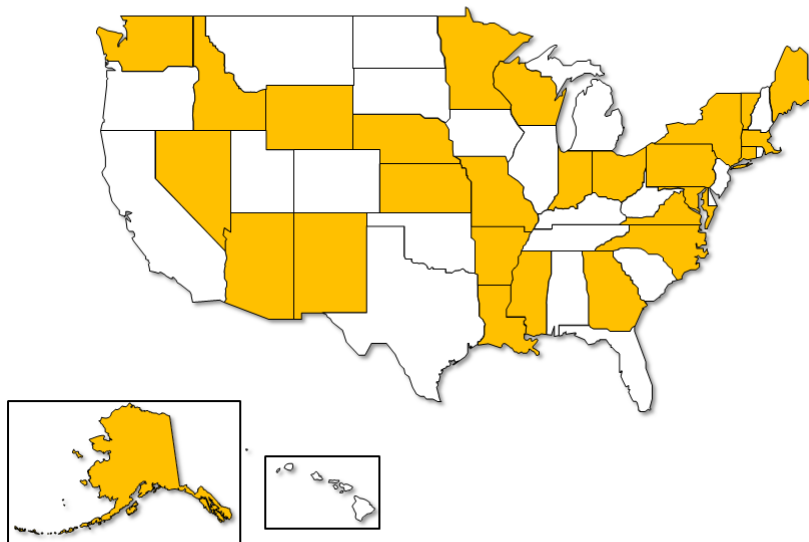
Distribution of Areas of Certification: Retail Motor Fuel Dispensing Systems
Updated: September 2016



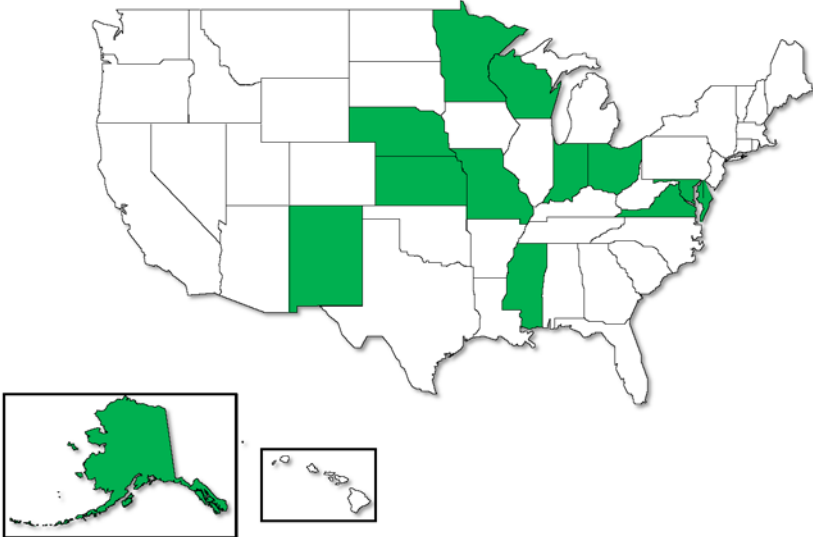
Distribution of Areas of Certification: Vehicle Tank Meters
Updated: September 2016



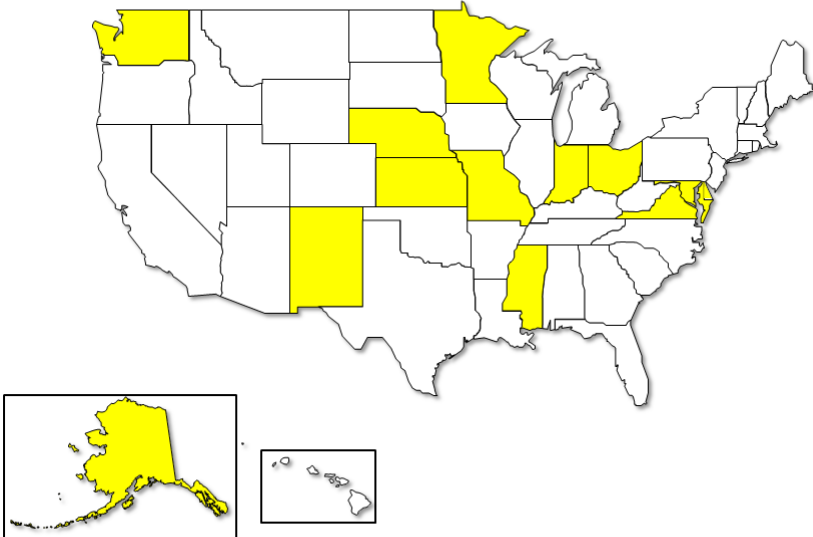
Distribution of Areas of Certification: Small Capacity Weighing Systems Class III
Updated: September 2016



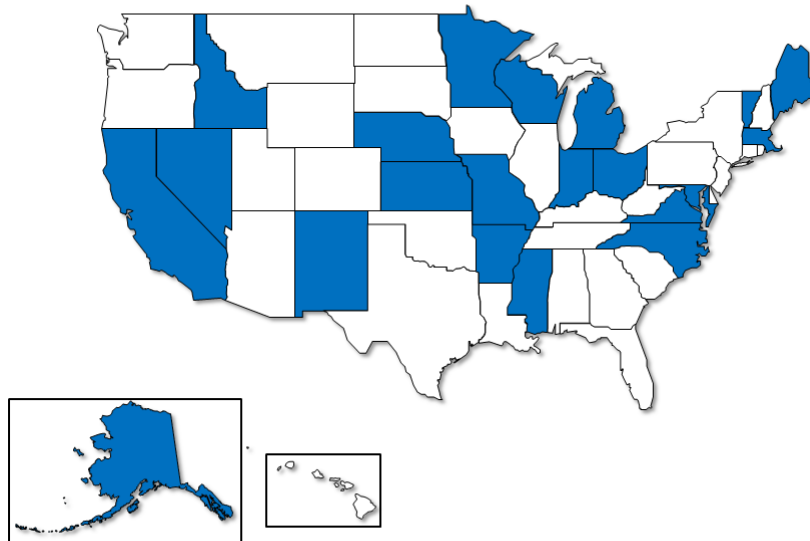
Distribution of Areas of Certification: Medium Capacity Weighing
Updated: September 2016



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. The Committee considered adding a short entry survey to each exam to capture meta-data on who is taking the exams. Examples of meta-data would have included the candidate's level of experience; whether the candidate is a regulatory official or a service agent; and so forth. The plan was to place the entry survey questions in an untimed, unscored portion of the exam. However, we could not implement the plan because of limitations in the exam hosting software. Any questions added, even unscored, get counted in the total number of questions for calculation of the percentage. Since no correct answers were possible, these survey questions would have counted as wrong answers for the percent correct.

In order to obtain valuable feedback on the Certification Program, the Committee has been working to create an exit survey which will be implemented using Survey Monkey. The questions on the exit survey will address the meta-data mentioned earlier, 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 has prepared a series of survey questions and 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 is working 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.

A comment was received from Kristen Macey (CA) asking to upgrade the priority of the precision scale certification based on the new phenomenon of cannabis as a legally traded commodity. The Committee deliberated and, as noted above, has directed the Certification Coordinator to move the priority for this exam ahead of Price Verification.

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.

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.

At the 2016 NCWM Annual Meeting, the Committee heard an update on NIST OWM Training provided over the past 12 months. Mrs. Tina Butcher (NIST OWM) noted that 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) and focused on the following areas.

- Laboratory Metrology (More than 470 students participated)
 - Seminars on Fundamentals on Mass and Volume Metrology and Lab Administration
 - Webinars for students from state and industry metrology laboratories on subjects such as document control, contract review, and procedures for documenting traceability and calibration intervals
- Weighing & Measuring Devices
 - Seminar in North Carolina on LPG Liquid-Measuring Systems (22 students from 13 states)
 - Seminar in South Dakota (held concurrently with the CWMA) on Retail Motor-Fuel Dispensers (24 students from 10 states)
 - Webinars on Pour and Drain Procedures (27 students from 16 states)
- Package Control
 - Seminars in Nevada, California, Texas, Nebraska, Kentucky and Other States on inspection of packages for accurate labeling and net wet (105 students)
 - Seminar in Nevada on Price Verification procedures in retail stores (19 students)

Mrs. Butcher also reported that the following OWM training is scheduled for the remainder of 2016:

- August 2016 – NIST Trainer Seminar – packaging
- October 2016 – Liquefied Petroleum Gas Liquid-Measuring Systems (Alaska)
- October 2016 – Compressed Natural Gas Metering Systems (Utah)*

**Editor's Note: This training on CNG Metering Systems has since been delayed to Spring 2017 at the request of the host jurisdiction.*

- At the 2017 Interim Meeting, Tina Butcher (NIST OWM) provided an overview of NIST training in the coming year. She noted information regarding these classes, including whether space is still available, will be posted on NIST's website under NIST OWM's calendar of events.
- Mrs. Butcher also reported that NIST will be hosting two Weights and Measures Administrators' Workshops on March 27-31, 2017 and April 10-14, 2017. Invitations will be sent in the next few weeks.
- The workshops will be structured to cover information primarily of interest to new administrators at the beginning of each workshop and information particularly relevant to experienced administrators during the latter portion of each workshop, with a day of overlap in between. However, all experience levels are encouraged to attend the entire workshop and that this wide range of participation would greatly enhance the experience for all participants. The agenda will include industry panels and presentations of best practices from current administrators.
- Kristin Macey (CA) commented that many jurisdictions are dealing with the sale of legalized marijuana as well as other new technologies and applications. She asked Mrs. Butcher if NIST has considered this and other areas with regard to the availability of NIST training and technical materials and also asked Ross Andersen (NCWM Certification Coordinator) if this has been considered within the NCWM Certification Program. Mrs. Butcher and Mr. Andersen reported that this area isn't currently addressed, but could be considered in the future. Both acknowledged the need to continue to continually consider new areas when prioritizing work and expressed appreciation for the ideas.

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.

The CWMA received comment that Nebraska would be hosting NIST OWM Medium Capacity Scale Training in conjunction with the CWMA Annual Meeting with fourteen seats available at the time of their fall meeting. Registration can be completed on the NIST OWM site. Participants must attend all sections of the two-day training to receive credit.

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 and, in some cases, those individuals are already training within their own jurisdictions or regions. Drawing from this pool of individuals, OWM hopes to develop trainers who can present schools on behalf of NIST, thus leveraging NIST resources; providing access to NIST training on a timetable that can meet jurisdictions' needs; 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 present specific technical schools on behalf of NIST. Candidates not only participate in "train the trainer" seminars, but also work with NIST staff to participate in technical training schools, assist in teaching seminars, and develop materials for use in NIST training schools.

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. OWM is considering how to ensure timely mentoring and continuity for individual instructors who will provide training on behalf of NIST. 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.

A list of all people who have attended a "Train the Trainer" class has been posted on the NCWM website, whether or not they have worked with NIST as co-trainers or attended NIST technical training schools. OWM has not yet certified anyone (external to NIST) as a "NIST Trainer," but looks forward to doing so once the structure of the Trainer Program is finalized and candidates have satisfied all requirements. At that point, a list of "NIST Trainers" will be posted along with the courses they are authorized to teach on behalf of OWM, and this list will be periodically updated as new trainers and technical areas are authorized. NIST does not have the resources to develop and sustain the development of all the trainers it invites to participate in NIST trainer program activities and events; however, even if a candidate is not designated to present on behalf of NIST, they and their jurisdictions can benefit from the experience and the candidate can still provide valuable training in their jurisdiction and region.

OWM is also looking at ways to enhance and streamline its training and help prepare students prior to a training class. Students are currently required to complete a self-study course on Handbook 44 prior to attending NIST device-related training seminars. NCWM has graciously agreed to offer an exam for this self-study course through the NCWM Certification Program system and is awaiting feedback from NIST on a beta version of the

online exam. As an additional measure, NIST contracted with Henry Oppermann (W&M Consulting) who developed a Basic Measuring Course. NIST plans to offer this course as a self-study course and may require it as a prerequisite to participating in NIST seminars on measuring devices. OWM plans to develop a similar course for weighing devices.

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 wants to reiterate 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 is creating, and posting 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 (See item 410-2). 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 beginning 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 September 2015 OWM finalized development of 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 personal skills as trainers. NIST plans to use this assessment tool to assess its trainers and assist them in their continued development. 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). OWM recognizes many trainers who are participating in the NIST Trainer Program have broader training responsibilities within their own agencies and may not master all of the competencies in this broad list; however, for the purposes of serving as a NIST OWM

trainer, only a subset of those competencies may be necessary. For example, a trainer may have responsibilities within his or her own jurisdiction related to the ongoing monitoring and development of individual students; however, this is not a responsibility required of a trainer when conducting a seminar on behalf of NIST. Thus, the OWM assessment tool includes the entire list of competencies found in the DOE model (for the convenience of those trainers with broader responsibilities), but designates those competencies with which OWM expects its external trainers to be proficient.

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. To ensure that external trainers in the NIST Trainer Program understand these provisions, OWM is continuing work on a series of short webinars that can be used to provide training to its external trainers. OWM will reach out to its trainers to participate in the webinar once it is ready.

Mrs. Butcher also commented that OWM’s Laboratory Metrology Program has a well-developed mentoring program and has been using external trainers for some time. Over the past two years, OWM has also involved a number of trainers in NIST field training seminars and has received positive feedback from students and hosts on these seminars. She expressed appreciation to those trainers for their work as well as other trainers who have participated in the NIST Trainer Program events. She also thanked Don Onwiler and the other NCWM staff for their continued assistance in coordinating travel arrangements for these trainers under the NIST grant to NCWM to support such training activities.

At the 2016 Annual Meeting, Mrs. Butcher expressed sincere thanks to those states that have allowed their trainers to work with NIST in the Trainer Program. She 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. OWM plans to update records on trainer’s preferences and experience; identify needed training and development opportunities; and document requirements and guidelines for the NIST Trainer Program.

At the 2017 Interim Meeting, Mrs. Butcher reported on activities in the NIST Trainer Program.

- OWM is currently revising criteria for instructors and will be collaborating with the NCWM BOD for input on the criteria.
- OWM is also in the process of reassessing the background and experience of instructors participating in the program and will be polling them to get updates on their background and experience in specific technical areas and courses taken in instructional methods as well as technical content. OWM will be asking the instructors to “self-declare” the areas of training in which they are interested in providing instruction.
- OWM is continuing to update and refine its own administrative procedures related to training and will share these updates with the trainers it is mentoring.
- Once this information has been collected and assessed, OWM plans to conduct a “Trainer Boot Camp” for those trainers it is actively mentoring. Others who are interested may be invited to participate if space allows.

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.

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.

- Transportation Network Systems (Panel discussion, NCWM Interim Meeting 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 than 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.

Prentiss Searles from API also volunteered to provide a presentation on “The Life Cycle of Petroleum from Well to Retail” if there is interest from the group. Paul Lewis from Rice Lake recommended that the local OSHA inspector be asked to talk at the NCWM annual meeting about what OSHA standards apply to weights and measures work.

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.

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

A link to these guidelines is available on the safety page of the NCWM website.

At the 2016 Interim Meeting, the Committee agreed that it is important for the Committee to open dialog with the regions on safety awareness and know how to mitigate or eliminate safety issues. Sharing reports of lost time and restricted work injuries can be one way for agencies to identify hazards which they might otherwise overlook. Following the 2016 interim meeting, the Committee designed an online survey covering incidents which resulted in lost or restricted time in 2015. NCWM invited jurisdictions to participate in that survey from February 1 – April 30. The results were reported at the 2016 annual meeting. All responses were kept confidential. Data was grouped by region and also reported for the nation as a whole. The committee expects to repeat the survey annually. The intent is to use survey results to identify new hazards and training needs, and to establish a bench mark to measure whether safety is improving over time in the weights and measures field.

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

Recent NCWM Newsletter Safety Article Contributors:

The Committee wishes to thank the people listed below for their contributions.

- **Elizabeth Koncki (MD):** *Driving While Towing a Trailer*, 2015 Issue 1
- **Brett Gurney (UT):** *Don't Be a Statistic: Watch for Workplace Hazards*, 2015 Issue 2
- **Doug Rathbun (IL):** *Defensive Driving*, 2015 Issue 3
- **Mike Sikula (NY):** *Safety Recommendations: Climbing Tanker Trucks for Sampling or Inspection*, 2016 Issue 1

The Committee asks for suggestions for safety articles that people would like to see in future newsletters and/or safety issues that need to be addressed immediately. The Committee reminds regional associations to check the submission deadlines for their upcoming article assignments. Email all articles to NCWM headquarters at info@ncwm.net.

Issue	Article Source	Article Deadline
Issue 2: May 2016	SWMA	April 15, 2016
Issue 3: September 2016	WWMA	August 15, 2016
Issue 1: February 2017	CWMA	January 15, 2017
Issue 2: May 2017	NEWMA	April 15, 2017
Issue 3: September 2017	SWMA	August 15, 2017
Issue 1: February 2018	WWMA	January 15, 2018

At its 2016 Annual meeting, NEWMA expressed interest in reviewing the statistics from a safety survey sent out by the NCWM to State Directors. At the CWMA 2016 Annual Meeting, Julie Quinn (MN), Central NCWM Representative to the PDC, gave a presentation on the results of that survey. The presentation included statistics for the Central region and spoke to the need to identify and develop safety programs to eliminate employee injuries and loss. Jurisdictions are encouraged to continue participation in the annual survey. NIST OWM representatives at the meeting stated that this is a great start to improve safety awareness. The presentation will be posted to the CWMA web site for review by interested parties.

At the 2016 NCWM Annual Meeting, the Committee presented a slide show covering the following points.

- What the NCWM Safety Survey is and how your organization can participate in it
- How to calculate different types of incident rates for your organization and why these numbers are important
- What the results of the NCWM Safety Survey were so that you can compare your program to regional and national results
- How to assess, prioritize and mitigate safety hazards using this information

This presentation may be found on the NCWM web site. Access the pdf file by pointing to the [Resources] tab on the navigation bar and selecting [Safety]. The presentation is titled "2016 NCWM Safety Survey."

The results of the National Safety Survey are shown below. If you did not participate, but would still like to contribute 2015 safety data to this survey, please contact NCWM Executive Director Don Onwiler. Industry is also invited to participate and provide data. Updated survey results will be presented at the 2017 NCWM Interim

Meeting. A survey requesting 2016 data will be opened for submissions in March 2017.

The following summarizes the data provided by states, organized by region:

# of States	Region	Employees	Hours	Lost Time	Restricted Time	L&RT*	Total	DART
2	North East	222	155000.0	0	0	0	0	0.0
2	Southern	140	281020.0	5	0	1	6	4.3
8	Central	185	341089.1	7	1	5	13	7.6
5	Western	114	193822.5	3	2	3	8	8.3
17	Total	661	970931.6	15	3	9	27	5.6

* L&RT = Number of incidents that led to both, lost and restricted time

The following summarizes the causes of incidents that led to Days Away/Restricted Time (DART):

National Safety Survey Data Summary				
Cause	Central	Southern	Western	Totals
Chemical agent	0	1	0	1
Vehicle accident	2	0	0	2
Slips, trips, falls	1	1	2	4
Lifting, bending, twisting	5	3	3	11
Totals	8	5	5	18

The reported impact of each cause is summarized in the following slides excerpted from Ms. Quinn’s presentation.

Impact - Chemical Agents

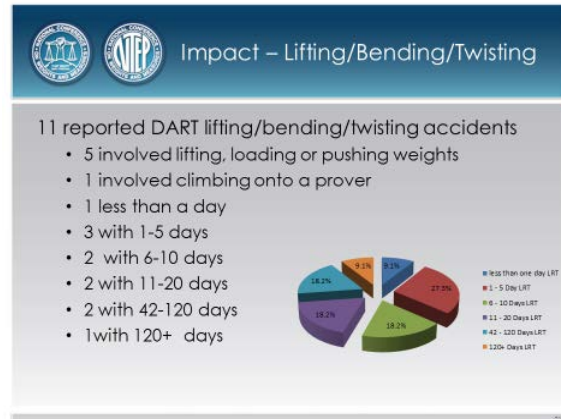
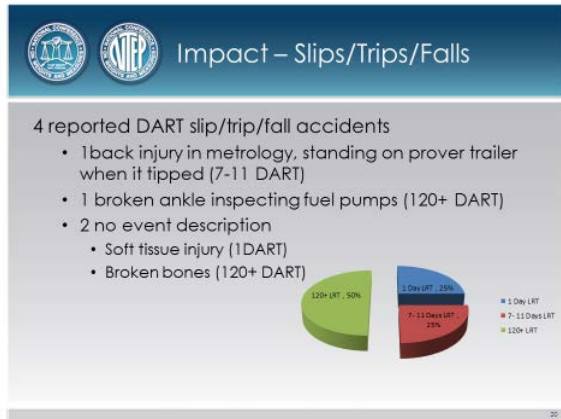
1 reported DART injury to an eye

- Less than one day lost
- No Restrictions

Impact - Vehicle Accidents

2 reported DART vehicle accidents

- Rolled a 1 ton truck resulting in soft tissue injury
 - 6-10 days lost time
- No event description but resulted in back/neck injury
 - 60+ days lost
 - 60+ days restricted



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.

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- Mr. Stacy Carlsen, Marin County, California | Committee Chair
 - Ms. Lori Jacobson, South Dakota | Member
 - Mr. Gene Robertson, Mississippi | Member
 - Ms. Cheryl Ayer, New Hampshire Member
 - Mr. Marco Mares, San Diego County, California | Member
 - Mr. Richard Shipman, Rice Lake Weighing Systems | Associate Membership Representative
 - Ms. Julie Quinn, Minnesota | Safety Liaison
 - Ms. Tina Butcher | NIST Liaison
 - Mr. Ross Andersen | Certification Coordinator

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:
 - Receive assistance from any other person in answering questions;
 - Access email, software applications, apps, or websites other than the NCWM testing service;
 - Use or operate cameras, cell phones, or memory devices, such as flash drives; or
 - 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.

Rules for the Proctor (cont.)

- 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.