

Professional Development Committee (PDC) 2017 Interim Meeting Agenda

Stacy Carlsen, Marin County, California
Committee Chair

4000 INTRODUCTION

The PDC will address the following items in Table A during the Interim Meeting. Table A identifies the agenda items by reference key, title of item, page number and the appendices by appendix designations. The first four digits of an item's reference key are assigned from the Subject Series List. The acronyms for organizations and technical terms used throughout the agenda are identified in Table B. In some cases, background information will be provided for an item. The fact that an item appears on the agenda does not mean it will be presented to National Conference on Weights and Measures (NCWM) for a vote. The Committee will review its agenda and may withdraw some items, present some items for information meant for additional study, issue interpretations, or make specific recommendations for change to the publications identified which will be presented for a vote at the Annual Meeting. The Committee may also take up routine or miscellaneous items brought to its attention after the preparation of this document. The Committee may decide to accept items for discussion that are not listed in this document, providing they meet the criteria for exceptions as presented in Section H of the introductions to *NIST Handbook 44* and *NIST Handbook 130*. The Committee has not determined whether the items presented will be Voting or Informational in nature; these determinations will result from their deliberations at the Interim Meeting.

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*.

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 provided that (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 at all possible, the posting will be done at least a day prior to the planned closed session.

Note: The policy is to use metric units of measurement in all of its 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	Professional Certification Program	3
4100-2	Training.....	9
4100-3	Instructor Improvement.....	11
4100-4	Recommended Topics for Conference Training	14
4200	PROGRAM MANAGEMENT	16
4200-1	Safety Awareness	16

**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 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 in order to take the exams for free.

Three new Professional Certification exams were deployed in 2015. These include Medium Capacity Scales, Large Capacity Scales, and Vehicle-Tank Meters. The next exams to be completed will be Liquefied Petroleum Gas (LPG) and Price Verification, followed by Mass Flow Meters, Packaging and Labeling, and Precision Scales. Work has begun on the LPG exam and the Price Verification exam. The PDC is still looking for additional SME volunteers for both of these 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

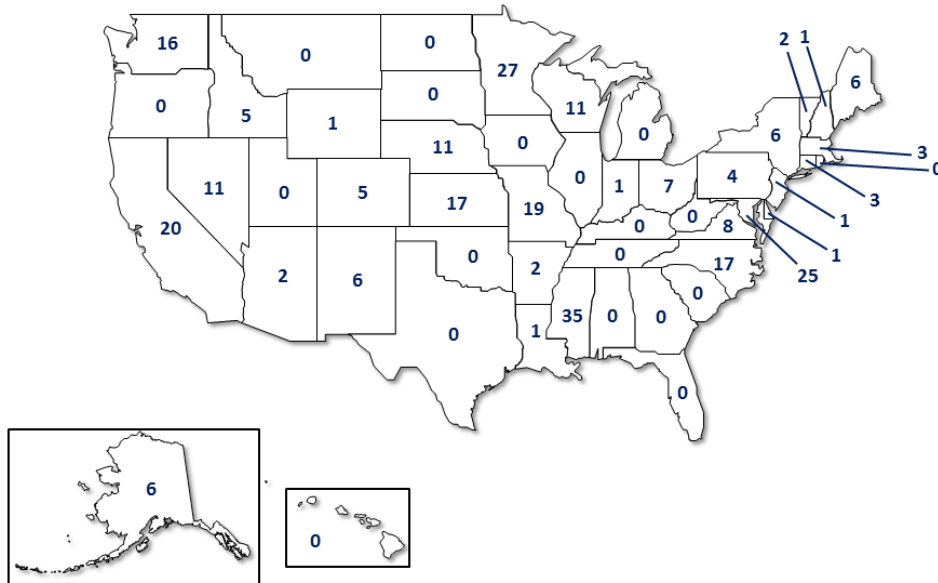
The NCWM has issued 310 professional certificates from inception of the Professional Certification Program to September 30, 2015. Of the certificates issued, six have been issued to individuals in the private sector (three for small scales, two for package checking, and one for retail motor-fuel dispensers). The balance of the certificates has been issued to regulators in 30 different states.

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	70	186	150
Cumulative	138	244	314	500	650

Certification (posted)	Certificates
RMFD (5/2010)	272
Small Scales (8/2012)	157
Package Checking (8/2012)	97
Medium-Capacity Scales (4/2015)	51
Large-Capacity Scales (4/2015)	34
Vehicle-Tank Meters (4/2015)	39

The following map includes 36 states with individuals holding a certificate in one or more disciplines. In addition to those certificates shown on the map, there are six certificates issued to private sector personnel. This data only includes certificates that have not expired.

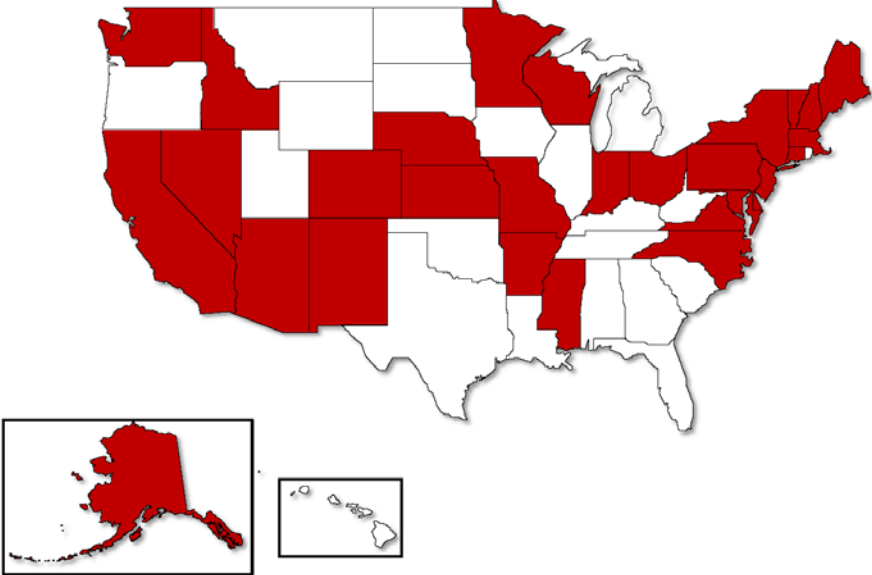
Distribution of Certified Professionals per State
Updated: September 2016



Number of Certificates by State			
State	Certificates	State	Certificates
Missouri	101	Idaho	8
Minnesota	77	Indiana	8
Maryland	65	Ohio	8
Mississippi	44	Colorado	6
Nebraska	33	New York	6
Washington	26	Vermont	5
Wisconsin	26	Massachusetts	4
North Carolina	23	Pennsylvania	4
Virginia	23	Delaware	3
Kansas	22	Arizona	2
California	19	Arkansas	2
Alaska	18	Louisiana	1
New Mexico	16	New Hampshire	1
Connecticut	15	New Jersey	1
Maine	10	Wyoming	1

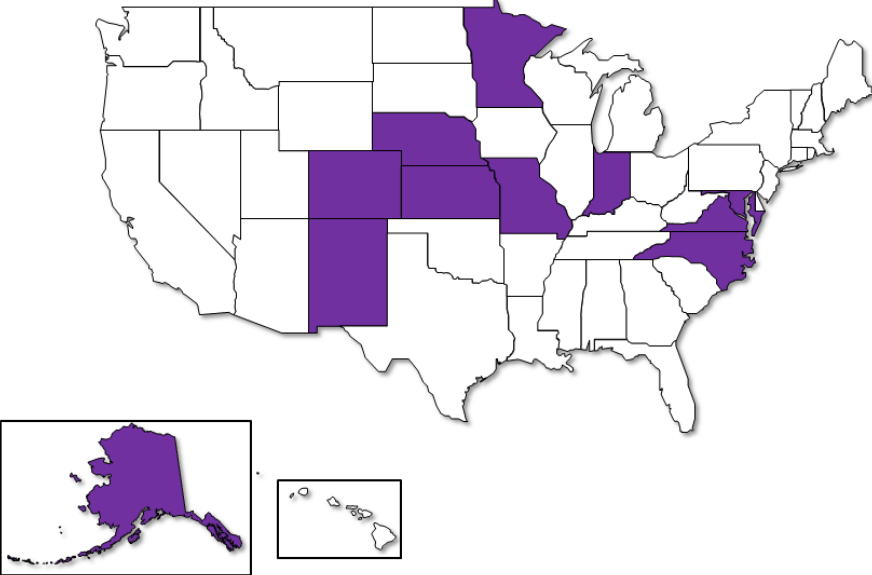
Distribution of Areas of Certification: Retail Motor Fuel Dispensing Systems

Updated: September 2016

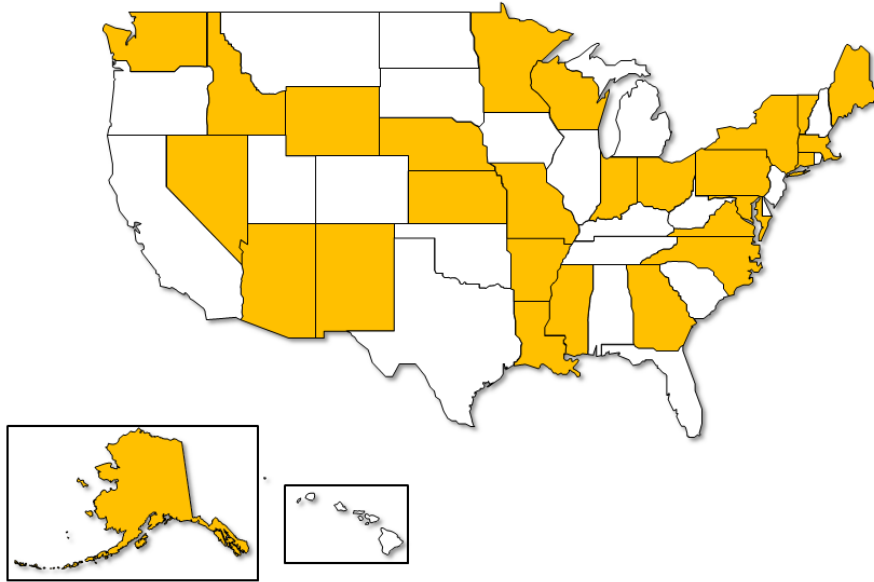


Distribution of Areas of Certification: Vehicle Tank Meters

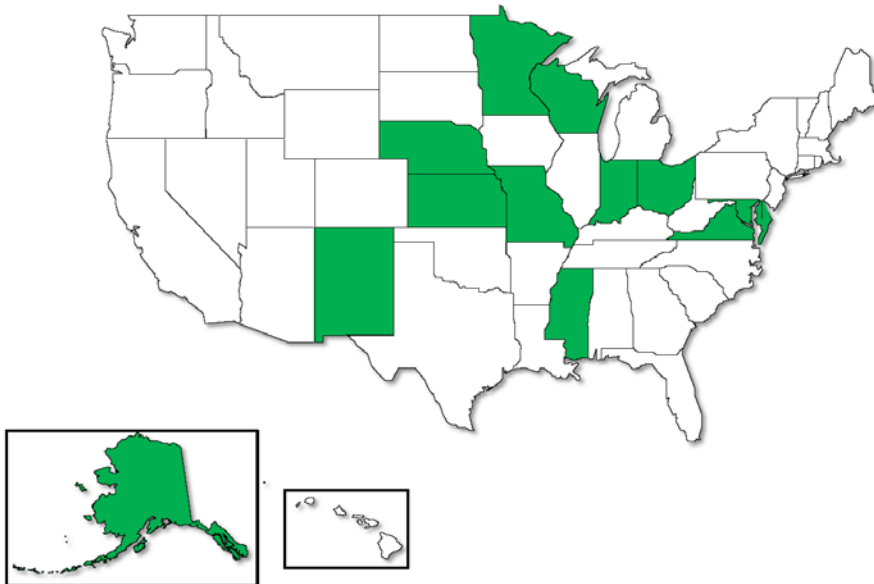
Updated: September 2016



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

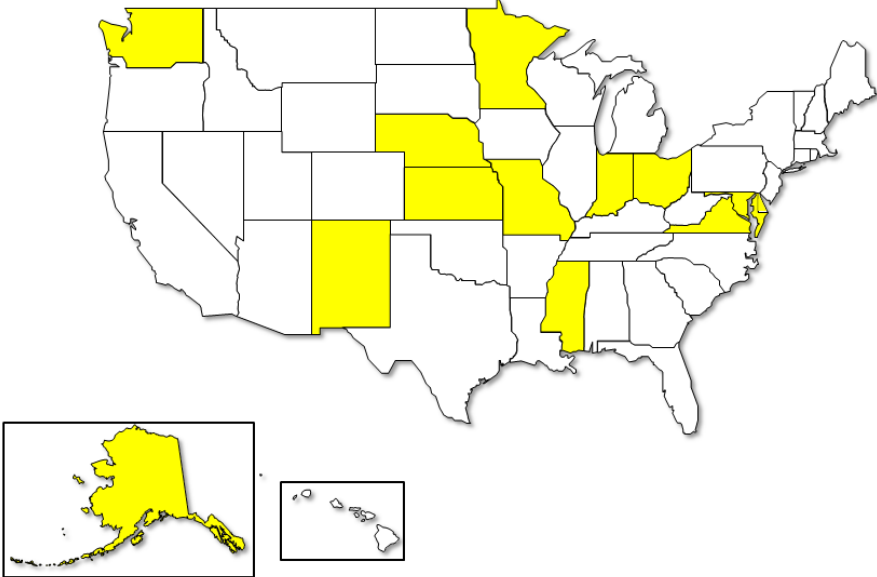


Distribution of Areas of Certification: Medium Capacity Weighing
Updated: September 2016



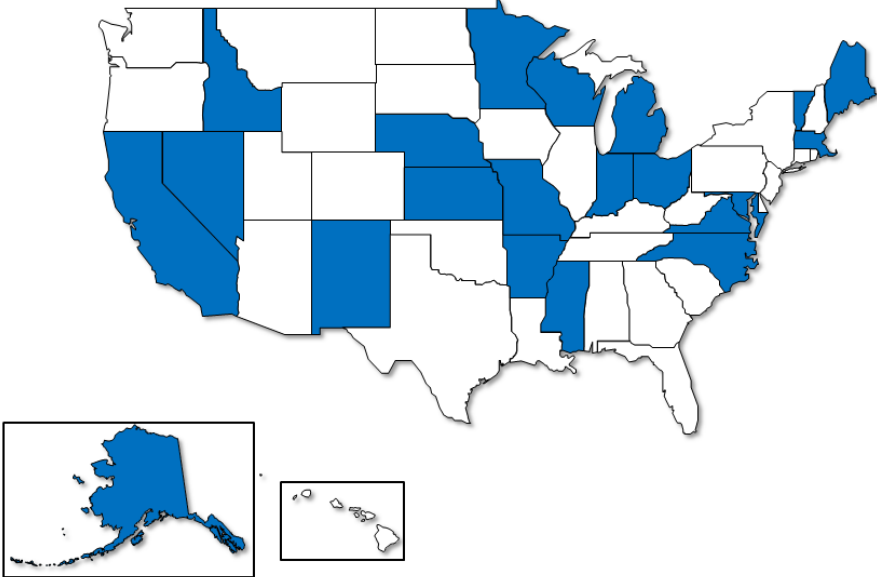
Distribution of Areas of Certification: Large Capacity Scales

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 and they include an annual review of the current exams by the Certification Coordinator. A short entry survey is being added to each exam to capture meta-data on who is taking the exams. Examples of meta-data include the candidate's level of experience; whether the candidate is a regulatory official or a service agent; and so forth. The questions are in an untimed, unscored portion of the exam. Personal data will not be used in any analysis using this information.

In order to obtain valuable feedback on the Certification Program, the Committee has begun work on an exit survey which will be implemented using Survey Monkey. The questions on the survey will address the 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?).

At the 2015 Interim Meeting, the Committee was asked to discuss and/or further develop multiple areas of the Certification program, including Accreditation; Proctoring Exams; Examination Protocol; and Intermediate Exams. At the 2015 Annual Meeting, the NCWM Board of Directors asked the Committee to explore the concept of basic competency exams. The Board also asked that the Committee consider whether there should be a distinction between exams for weights and measures officials vs. service personnel and, if so, how to delineate between the exams.

Following the Annual Meeting, the Committee developed criteria for proctoring to meet accreditation requirements. Additionally, the PDC developed learning objectives to support basic competency exams for service agents and officials.

The Committee received multiple comments from the fall 2015 regional weights and measures association meetings. All four regional associations continue to express support for the Certification program and support maintaining this item as an "Information" item on the Committee's agenda.

Some Committee members report that independent proctoring services may offer a wide number of locations in which testing can be offered, possibly providing an even wider choice of locations than might be practical through a weights and measures jurisdiction. The Committee will continue to explore the issue of proctoring exams and welcomes ideas and input from the community.

At its open hearings, the Committee asked NCWM members for feedback on the current Professional Certification exams. Multiple states commented that they use the existing exams to assess competency levels of staff members; identify gaps in performance; assess the effectiveness of training provided; and encourage the personal professional development of their staff. Julie Quinn (MN) further noted that the exams are challenging and the candidates who successfully complete the professional certification exams feel a sense of professional pride and accomplishment.

The PDC presented the concept of new exams (which include a Handbook 44 component and a device component) in the following areas:

- Basic Service Agent Competency – Weighing Devices
- Basic Service Agent Competency – Liquid Measuring Devices
- Basic Regulatory Official Competency – Weighing Devices
- Basic Regulatory Official Competency – Liquid Measuring Devices

The Committee asked NCWM members for input on the following questions:

1. For those states that license service agents would the Service Agent Basic Competency Exam be of value in the licensing process?
2. For states and other jurisdictions would the Basic Regulatory Official Competency Exams be of value in evaluating the effectiveness of training?

Many states spoke in support of the development of basic competency exams. Several states noted that they could use these exams for service agents as well as entry level officials.

During its working session, the Committee noted that the basic competency exams will only cover very general objectives in the weighing or measuring area. The committee acknowledged comments from some weights and measures directors indicating that there may be a need for additional, more specific exams to demonstrate competency of service agents in focused topic areas. For example, a jurisdiction may want some evidence that a service agent who is going to be servicing LPG metering systems has demonstrated competence in that specific area, rather than just in the basic competency area of measuring devices. The Committee will continue to develop the concept of these basic exams while continuing to expand the Professional Certification Program to include new topic areas. The Committee appreciates and looks forward to continued input on both the Professional Certification exams as well as other exams that might be used to demonstrate lower levels of competency.

Since the 2016 Interim Meeting the committee has worked with the BOD regarding the direction for the basic competency exams. At the 2016 Annual Meeting, the Committee reported that two exams will be developed: Basic Weighing and Basic Liquid Measuring. The Committee plans for each exam to include two parts; each exam will include a total of thirty questions and participants will be allotted a one-hour time limit the exam. Part one of the Weighing Exam will include questions on the General Code in Handbook 44 and part two will include general questions on weighing devices covered in the Scales Code. Part one of the liquid-measuring exam will include questions on the General Code in Handbook 44 and part two will include general questions on liquid-measuring devices covered in the Liquid-Measuring Devices Code, the Vehicle-Tank Meters Code, and the Mass Flow Meters Code.

The modules containing the learning objectives have been drafted for both exams and will be posted to the NCWM website shortly. The Committee plans to send copies of the modules to state directors with a very brief survey. The Committee is primarily interested in knowing if state directors would use exams in evaluating the training progress of their staff and if they would use the exams in the licensing of service agents in their states. The survey will also request feedback on whether the learning objectives are appropriate for basic competency of weights and measures officials and service personnel.

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 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 2014 annual meeting, the Committee announced that the NCWM Model Field Training Program, developed by a sub-committee chaired by Mr. Michael Cleary (CA, retired), is available for use. During the remainder of 2014 and in 2015, Mr. Cleary provided instruction on the use of the program at multiple regional weights and measures association meetings, thanks to support from the Associate Membership. At the 2015 annual meeting, Mr. Cleary spoke about the training he provided at the regional meetings and stated that his PowerPoint presentation from the CWMA meeting is available on the NCWM Website at http://www.ncwm.net/training/model_training. The Committee acknowledged the positive feedback received on

the program and expressed appreciation to Mr. Cleary and the sub-committee members. As feedback has been received on the model program, minor changes have been made and the updated document can be found under the training section of the NCWM website through the Resources tab. If you have any suggestions or recommendations or if you need support for successful implementation, please contact a member of the PDC.

At the 2015 Interim and Annual Meetings, Tina Butcher (NIST Office of Weights & Measures (OWM)) reported that a training video on retail motor-fuel dispensers (RMFDs) was released by the NIST OWM in Fall 2014 and work is underway on a similar video for small capacity scales. The RMFD video demonstrates and provides an overview of the inspection and testing of an RMFD for compliance with NIST Handbook 44. It includes how to select and maintain a standard, wetting the standard, normal and slow flow tests, leveling, reading the meniscus, draining a test measure, and the anti-drain test. The video is available in a 14-minute video segment or it may be viewed in individual segments. The video can be accessed from OWM's home page at: <http://www.nist.gov/pml/wmd/index.cfm>. Select the "Legal Metrology Devices" link under "Programs." On the "Legal Metrology Devices Program" page, click on "Training Materials" under "Related Links." A NIST Handbook 44 Self-Study Course is also accessible on the "Training Materials" page.

During open hearings at the 2016 Interim Meeting, Stacey Carlsen (Marin County, CA) commented he is encouraged to see how the sustained collaboration among the States, the PDC, and NIST OWM continues to strengthen the foundation for professional development in the weights and measures community. Tina Butcher (NIST OWM) reported that NIST continues to develop a video on small capacity scales (similar to the previously referenced one for RMFDs) and expects to have that available on its web site later in 2016.

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.*

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 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 of 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.

All of 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

During open hearings at the 2016 Interim Meeting, Kristin Macey (CA Division of Measurement Standards) commented that it would be helpful to have the "trainer" list on the NCWM website expanded to include more specific disciplines such as CNG. Tina Butcher (NIST OWM) provided an update on activities related to NIST Trainer Program. In spring 2015 NIST held two Instructor Training events (one for laboratory metrology trainers and one for field inspection trainers) in which a number of participants in the NIST Trainer Program participated. OWM hopes to hold another Instructor Training event in 2016, but a date has not yet been set.

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 need 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 NCWM 2016 Annual meeting, Tina Butcher (NIST OWM) provided an update on activities in the NIST Trainer Program. She began by expressing sincere thanks to the states of Arizona, California, Colorado, Connecticut, Michigan, New York, Ohio, Oregon, and Pennsylvania. These states allowed their trainers to work with NIST staff in presenting a number of the seminars on device and package inspection. These trainers brought considerable expertise to these training events and were instrumental to the success of the events.

Mrs. Butcher also 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. In the next few months, 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.

Mrs. Butcher noted the following development opportunities for NIST Trainers scheduled in the coming months.

- HB 133 class for 10 current NIST trainers
 - Testing Packages Labeled by Count & Dimension (August 2016)
- Introductory Webinars
 - Adult Learning Principles (e.g., Bloom’s Taxonomy and Introduction to ADDIE Model) (Fall 2016)
 - Overview of Instructor Competencies (Spring 2017)
- Introductory 3-day training session for new trainers in 2017
- Current trainers in LPG and RMFD will be invited to participate in review and revision of course materials (Spring 2017)

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 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.

- 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);
- Automatic Temperature Compensation (ATC) Field Test Procedures (Mr. Don Onwiler, Chair ATC Steering Committee, 2008);
- Elements of an Effective Safety and Health Program (Mr. Dan Whipple, OHST Vermont Department of Labor, 2008);
- Analyzing Temperature Compensation Data (Mr. Henry Oppermann, NIST OWM, and Mr. Steven Malone, Nebraska Division of Weights and Measures, 2007);
- The Great Temperature Compensation Debate (Mr. Ross Andersen, New York Bureau of Weights and Measures, 2007);
- NIST Handbook 44 Scale Code Tare Changes (Mr. Steve Cook, NIST OWM)
- Transportation Network Systems (Panel discussion, NCWM Interim Meeting 2016)

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 of 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 provide assistance 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 of 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 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 up 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 will be reported at the 2016 annual meeting. All responses will be confidential. Data will be 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 safety page houses the list of regional safety liaisons and an archive of past safety articles. The Committee wishes to thank the people listed below for their contributions.

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

NCWM Newsletter Safety Article Contributors:

- **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. That presentation will also be available on the NCWM web site.

- 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

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

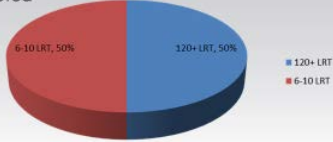
- Less than one day lost
- No Restrictions



Impact – Vehicle Accidents

2 reported DART vehicle accidents

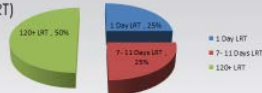
- Rolled a 1 ton truck resulting in soft tissue injury
 - 6-10 days lost time
- No event description but resulted in back/neck injury
 - 60+ days lost
 - 60+ days restricted



Impact – Slips/Trips/Falls

4 reported DART slip/trip/fall accidents


- 1 back injury in metrology, standing on prover trailer when it tipped (7-11 DART)
- 1 broken ankle inspecting fuel pumps (120+ DART)
- 2 no event description
 - Soft tissue injury (1 DART)
 - Broken bones (120+ DART)



Impact – Lifting/Bending/Twisting

11 reported DART lifting/bending/twisting accidents

- 5 involved lifting, loading or pushing weights
- 1 involved climbing onto a prover
- 1 less than a day
- 3 with 1-5 days
- 2 with 6-10 days
- 2 with 11-20 days
- 2 with 42-120 days
- 1 with 120+ days



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.

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