

Professional Development Committee (PDC) 2021 Interim Meeting Agenda

Mr. David Aguayo, Committee Chair
San Luis Obispo County, California

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 *Handbook 44* and *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 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

Education	EDU Series
Program Management.....	PMT Series
Other Items.....	OTH Series

**Table A
Table of Contents**

Reference Key	Title of Item	PDC Page
EDU – EDUCATION		251
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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
		WWMA	Western Weights and Measures Association

Details of All Items
(In order by Reference Key)

1 **EDU – EDUCATION**

2 **EDU-1 I Professional Certification Program**

3 The NCWM now offers nine professional certification exams and two basic competency exams. The certification
 4 exams include Retail Motor Fuel Dispensers, Vehicle-Tank Meters, Small Capacity Scales, Medium Capacity Scales,
 5 Large Capacity Scales, Precision Scales, LPG and Anhydrous Ammonia, Price Verification and Basic Package
 6 Checking. Reporting on the Price Verification exam begins this year and reporting on the LPG and Anhydrous
 7 Ammonia will begin next year. The competency exams include Basic Weighing Devices and Basic Liquid-Measuring
 8 Devices. Professional certifications must be renewed every five years. The NCWM has implemented a process to
 9 notify candidates whose certificates have expired.

10 The exams for Precision Scales and LPG and Anhydrous Ammonia were released in July 2020. Work on developing
 11 the body of knowledge for mass flow meters will begin in early 2021 followed by packaging and labeling. The
 12 Committee encourages discussion about priorities for future exams and continuous improvement of the program.

13 In August 2018, the NCWM Board approved the guidelines for proctoring and implemented the system. Proctoring
 14 is a vital component of plans to accredit the certification program. Each organization is required to register the proctors
 15 they intended to use. Proctor qualifications are different for basic competency exams and professional certification
 16 exams so two lists of proctors are maintained. To eliminate conflicts of interest, proctors for professional certification
 17 exams must not be immediate supervisors of the candidate.

18 **Number of Proctors Per State** *(as of October 2020)*

	FY17-18	FY18-19	FY19-20
Basic	39	57	70
Professional	17	28	37

19 **Number of States with Proctors** *(as of October 2020)*

	FY17-18	FY18-19	FY19-20
Basic	10	14	18
Professional	7	11	16

20 The requirements for proctors are posted on the NCWM website at <https://www.ncwm.com/proctoring>.

1 **Status of Current Tests**

2 The NCWM has issued 1,152 professional certificates from the inception of the Professional Certification Program
 3 to September 30, 2020. Of the certificates issued, twelve have been issued to individuals in the private sector. The
 4 balance of the certificates has been issued to regulators. There has been a significant decline in participation in the
 5 program. In FY 17-18, NCWM awarded 257 professional certificates and in FY 18-19, it awarded 53 professional
 6 certificates, a decline of 79%. Participation improved slightly in FY 19-20 with 56 individuals earning certificates. It
 7 appears that the decline coincides with the requirement to proctor exams and the pandemic has had an impact on FY
 8 19-20 participation. Some of the certificates have reached their 5-year expiration and certificate holders will need to
 9 seek recertification. NCWM notifies certificate holders before expiration to facilitate recertification.

10 **NCWM Professional Certificates issued:**

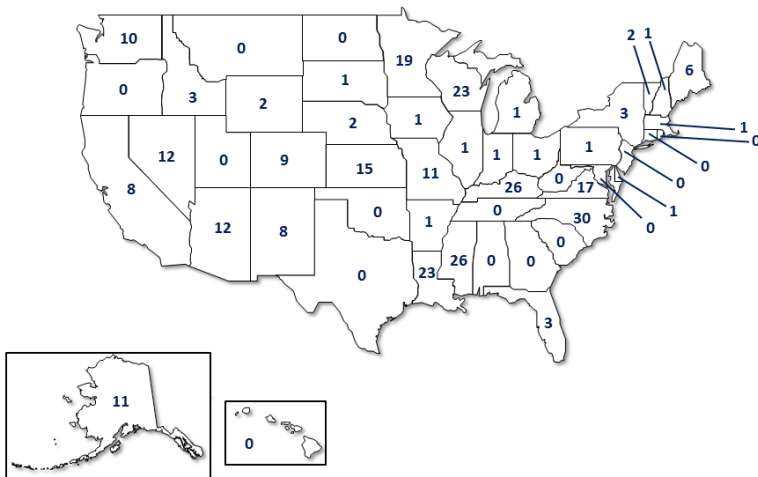
	FY10-11	FY11-12	FY12-13	FY13-14	FY14-15	FY15-16	FY16-17	FY17-18	FY18-19
Exams Passed	44	94	105	62	198	140	142	257	53
Cumulative	44	138	243	305	503	643	785	1,042	1,095

11 **NCWM Professional Certificates issued (cont.):**

	FY19-20
Exams Passed	56
Cumulative	1,152

12 The following map shows the states with individuals holding an active professional certificate in one or more
 13 disciplines. Please note that the twelve active certificates issued to private sector individuals are included in these
 14 figures. This data only includes certificates that have not expired as of September 30, 2020.

Distribution of Certified Professionals per State
 Updated: September 2020



15

- 1 The table below shows the 37 states using the program and the number of certificates earned since program inception
- 2 and includes expired certificates. The Committee applauds these states and encourages increased use of the
- 3 certification program nationwide.

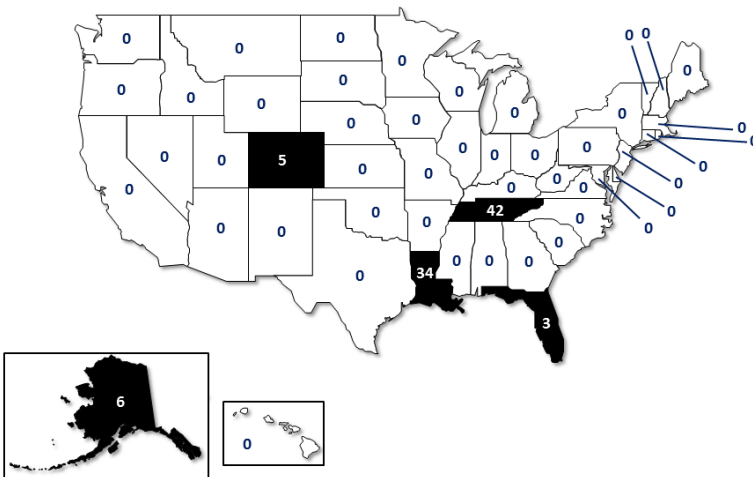
State	Certificates	State	Certificates	State	Certificates	State	Certificates
Minnesota	152	Alaska	38	Ohio	13	South Dakota	3
Missouri	143	Nebraska	33	Private	12	Oregon	2
Wisconsin	84	Arizona	26	Idaho	11	Tennessee	2
Maryland	20	Maine	26	Massachusetts	11	Montana	1
Virginia	70	Nevada	25	Vermont	8	New Hampshire	1
Mississippi	56	New Mexico	23	Pennsylvania	7	West Virginia	1
North Carolina	52	New York	19	Wyoming	7		
Washington	50	Colorado	18	Arkansas	6		
Kansas	45	Connecticut	15	Delaware	4		
California	41	Indiana	13	Michigan	3		

4 **NCWM Basic Competency Certificates issued:**

	FY17-18	FY18-19	FY19-20
Exams Passed	1	64	25
Cumulative	1	65	90

- 5 The following map includes the states with individuals holding a basic competency certificate.

Distribution of Competency Exams per State
Updated: September 2020



- 6
- 7 The table below shows those states with the highest utilization of the Basic Exams Program. The Committee applauds
- 8 these states and encourages increased use of the certification program nationwide.

State	Certificates
Tennessee	42
Louisiana	34
Alaska	6
Colorado	5
Florida	3

1 NCWM 2019 Annual Meeting: Mr. Tim Chesser (AR) suggested the committee investigate ways to encourage/assist
2 states not yet providing proctors to do so. It was suggested by Mr. Jerry Buendel (WA, Retired) that alternate sources
3 for proctoring, e.g. commercial 'learning centers', could be utilized. Mr. Ken Ramsburg (MD) voiced support for
4 looking into this approach. Mr. Paul Floyd (LA) suggested that existing government testing facilities (e.g. civil service
5 exams) could also provide examples of ways to provide proctored exams. Mr. Jim Willis (NY) expounded on that
6 thought, suggesting state associations may be another resource.

7 Mr. Don Onwiler (NCWM Executive Director) informed the group that the survey as most recently submitted to the
8 Board by the PD Committee was accepted. The survey will include two free-form optional entries for feedback, one
9 for the exam itself and one for the process of taking the exam. NCWM staff will review the responses and provide
10 feedback to the PD Committee Certification Coordinator.

11 NCWM 2020 Interim Meeting: Dr. Bobby Fletcher, Jr. (LA) stated that they have been successful in using state civil
12 service offices and university testing facilities for proctoring NCWM exams. He also said that Louisiana uses
13 successful completion of the exams in the personnel reallocation and promotion process. Mr. Mahesh Albuquerque
14 (CO) reported that Colorado's inspectors are encouraged to take the exams. He also expressed concern that the basic
15 exams are more difficult than the Professional Exams. He also asked if the basic exams could be more specific to
16 device areas. Mr. Greg VanderPlaats (MN) commented that the proctoring rules have made the exam process more
17 difficult. Mr. Ramsburg stated that Maryland has not taken an exam since the proctoring requirements went into
18 place. Mr. VanderPlaats added that proctoring is expensive. Mr. Ed Coleman (TN) stated that the Basic Competency
19 Exams are more difficult than the Professional Exams. He also expressed concern that the test takers do not have an
20 opportunity to see what questions they missed and the correct answers to those questions. Mr. Don Onwiler
21 (NCWM) commented that he had completed an exam at a professional learning center and found them to be
22 professional and easy to use. He noted that they charge a fee for their services. He stated that there are other testing
23 organizations such as colleges or professional testing centers that may not need to sign the NCWM proctoring
24 agreement. Mr. Onwiler announced that the Professional Certification Program has taken the first step in accreditation.
25 NCWM has contracted with an accreditation organization to perform a gap analysis and we should have their report
26 in two or three months. He will update the Committee in July.

27 **Regional Association Comments:**

28 WWMA 2020 Annual Meeting: No comments were received during open hearings regarding this item. The
29 Committee recognizes the tremendous advantages and value of the NCWM's Professional Certification Program and
30 appreciates the work that many in the community have contributed to the continued operation of the program. The
31 Committee has read with interest the concerns that some have raised regarding the use of proctors and encourages the
32 NCWM PDC to review this element of the program.

33 During the 2020 Interim Meeting concern was expressed regarding additional costs due to proctoring of exams. The
34 Committee encourages organizations to seek internal proctors to control expenses and/or explore applications with
35 the Associate Membership Committee (AMC) to receive funds for this purpose. The Committee recognizes the
36 challenges imposed in securing a proctor during pandemic restrictions. The Committee encourages continued research
37 by the Board on various options that may be available to jurisdictions to allow examinations to continue without
38 interruption during the pandemic.

39 SWMA 2020 Annual Meeting: Chairman Paul Floyd (LA) commented that efforts would be made to update the
40 information in this item for the NCWM Annual Meeting. Mrs. Tina Butcher (NIST OWM) commented that the
41 Western Association meeting discussed issues evolving around proctoring exams and additional resources from
42 outside agencies that may need to be acquired. At the WWMA, several jurisdictions shared best practices and
43 approaches for securing proctors. Mrs. Butcher also noted the NCWM PDC would be interested in hearing the
44 experiences of and input from SWMA members on this issue. Mr. Paul Floyd (Louisiana) commented that Louisiana
45 has added another testing center, a smaller college in Central Louisiana, for both basic and professional exams. Mr.
46 Kenneth Ramsburg (MD) commented that they found proctoring was an issue since their Department of Agriculture
47 in Maryland is relatively small and they were looking for outside sources to assist in administering the exams. Mr.
48 Ramsburg added that the PDC and NCWM missed an opportunity for more exams to be taken by not offering them
49 in an easily accessible online format.

1 NEWMA 2020 Interim Meeting: During its open hearings, the Committee heard comments related to the
 2 implementation of proctoring for the NCWM Professional Certification Program Exams. Don Onwiler (NCWM)
 3 commented that jurisdictions are using various approaches to implement proctoring and shared an example of one
 4 state that is making use of universities and learning centers for this purpose, which Mr. Onwiler is happy to authorize.
 5 He noted there may be a cost for some of these proctoring arrangements and suggested that jurisdictions might consider
 6 exploring the possible use of AMC funds for training toward these costs. Tina Butcher (NIST OWM) noted that
 7 during discussions at the recent Western and Southern Weights and Measures Association Meetings, jurisdictions
 8 shared different approaches they have used for proctoring. She suggested that perhaps this kind of shared information
 9 of best practices might be beneficial for jurisdictions seeking options to implement this. Ross Andersen (NY, retired)
 10 commented that there is a wealth of information and guidance on the NCWM website to assist jurisdictions in the
 11 process of securing proctors for these examinations. Jimmy Cassidy (MA) acknowledged the difficulty in coordinating
 12 proctoring. Particularly with the restrictions of the pandemic, certification and testing of inspectors seems to be at a
 13 standstill right now. He encouraged the Committee to pursue the idea of exploring the use of AMC funding to help
 14 jurisdictions certify its inspectors. PDC Chairman, Marc Paquette (VT) observed there is a need to ensure the integrity
 15 of the examination process. Regarding virtual training, he noted that Tina Butcher will share some of NIST's work
 16 in this area as part of the Committee's next item.

17 The Committee recognizes the advantages and value of the NCWM's Professional Certification Program and
 18 appreciates the work that many in the community have contributed to the continued operation of the program. After
 19 hearing some of the concerns regarding the use of proctors, the Committee encourages the NCWM PDC to review
 20 this element of the program to identify additional ways to assist jurisdictions in implementing it. The Committee
 21 acknowledges that the COVID-19 pandemic and its associated restrictions have been a setback to jurisdictions in many
 22 regards, particularly in the areas of training and certification. The Committee also suggested that the NCWM Board
 23 of Directors may wish to revisit the issue of proctoring and consider relaxing the proctoring until such time that
 24 jurisdictions can more readily implement it.

25 CWMA 2020 Interim Meeting: Mr. Don Onwiler (NCWM) shared that both Arkansas and Louisiana have asked for
 26 universities to be authorized to provide proctoring and have been granted that request. Mr. Onwiler mentioned that
 27 this may be an option for other states to explore as well. Mr. John Albert (MO) added via Zoom chat that Missouri's
 28 HR department has agreed to proctor the exams for their employees. Sherry Turvey (KS) and Ms. Brenda Geist (KS)
 29 reported that their HR department will not provide proctoring, but Barton County Community College has agreed to
 30 proctor and is charging by the hour. Ms. Rachelle Miller (WI) added that they have had a difficult time with
 31 proctoring with the pandemic restrictions but had been able to proctor themselves with the aid of other divisions. Ms.
 32 Miller also commented that the City of Milwaukee has done the same. Mr. Onwiler (NCWM) noted he has suggested
 33 that the states that are having issues with proctoring on a large scale could apply for Associate Membership Committee
 34 (AMC) funding for this purpose.

35 Mr. Greg VanderPlaats (MN) shared the fact that Minnesota has not done any professional certification tests since the
 36 proctoring requirement was put in place. They used the testing heavily before that but are having difficulties finding
 37 the time to find anyone to proctor for them.

38 **EDU-2 I Training**

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

41 At the 2019 Interim Meeting, the Committee was asked to consider reviewing and potentially updating/reintroducing
 42 the old NIST OWM training modules. The Committee agreed to investigate whether these modules are still available
 43 in digital form. Mr. Ross Andersen (NY, Retired) indicated that NIST has extensive training materials that we could
 44 leverage; requesting these materials from NIST may be beneficial.

45 The Committee also heard updates from several sources announcing upcoming device training hosted by Kansas and
 46 about upcoming combined NIST regional weights and measures metrology training. Three states recommended that
 47 NCWM and NIST OWM consider joint development of training videos and investigate funding from additional
 48 sources such as grants.

1 NCWM 2019 Annual Meeting: Mr. Christopher Guay (AMC, Procter & Gamble) asked if webinars or other NIST
 2 training could be made available to associate members or industry in general. Ms. Tina Butcher (NIST OWM)
 3 responded by indicating that such training is already possible on an as-available basis.

4 NCWM 2020 Interim Meeting: Ms. Tina Butcher (NIST OWM) has continued to provide updates on training provided
 5 to the weights and measures community by NIST OWM. During the Committee’s 2020 NCWM Interim Meeting
 6 open hearings, Ms. Butcher presented the following updated information, which includes NIST OWM training
 7 conducted in the calendar year 2019 as well as training planned for 2020. Based upon a previous request from the
 8 Committee, these updates are based on the calendar year. Ms. Butcher noted that some training events listed for 2020
 9 are still being negotiated with the hosts so specific dates are not yet available.

10 A complete list of upcoming OWM training events is available on the calendar of events on the OWM website at
 11 <https://www.nist.gov/pml/weights-and-measures/about-owm/calendar-events>.

12 Ms. Butcher encouraged those interested in a training event to review the details for the event on OWM’s web site for
 13 information such as the availability of the class, intended audience, and any prerequisites.

NIST OWM Training Conducted in 2019			
Area/Course Name	Start Date	Location	No. of Students
Laboratory Metrology			
Advanced Mass Seminar	04/29/19	Gaithersburg, MD	9
Balance & Scale Proficiency Testing	06/03/19	Gaithersburg, MD	8
Fundamentals of Metrology	03/04/19	Gaithersburg, MD	7
	03/11/19	Gaithersburg, MD	9
	03/18/19	Gaithersburg, MD	10
	08/05/19	Gaithersburg, MD	9
	08/19/19	Gaithersburg, MD	8
Mass Metrology Seminar	04/18/19	Gaithersburg, MD	9
	10/21/19	Gaithersburg, MD	10
Volume Metrology Seminar	08/12/19	Gaithersburg, MD	12
Regional Measurement Assurance Programs			
Combined Regional MAP	05/31/19	Lake Mary, FL	107
CRMAP Tutorial 1 – Balance & Scale Calibration Uncertainties	05/31/19	Lake Mary, FL	20
CRMAP Tutorial 2 – Calibration & Use of Thermometers	05/31/19	Lake Mary, FL	16
CRMAP Tutorial 3 – Workshop on Assessing & Reporting Uncertainties	05/31/19	Lake Mary, FL	16
Info Hours			
Info Hour – Annual Submission Process	08/20/19	Web-based	53
Info Hour – Mass Traceability at NIST in the revised SI	12/02/19	Web-based	83
Webinars			
Basic Uncertainty Concepts	04/24/19	Web-based	9
Calibration Certificate Evaluation	08/06/19	Web-based	5
Conducting an Effective Management Review	03/07/19	Web-based	10
Contract Review	08/15/19	Web-based	16
Document Control and Record Keeping	08/29/19	Web-based	14
Internal Auditing Best Practices	02/21/19	Web-based	6
	11/14/19	Web-based	8
Mass Calibration at NIST in the Revised SI	12/10/19	Web-based	83
Software Verification & Validation	04/11/19	Web-based	7

State Laboratory Annual Submission Process	09/12/19	Web-based	70
Packaging & Price Verification			
HB 130 – Uniform Pkg & Label Regs	10/28/19	Avenel, NJ	16
HB 133 – Checking the Net Contents of Packaged Goods, Basic	04/01/19	Gaithersburg, MD	10
	04/15/19	Glendale, AZ	18
	11/05/19	Santa Rosa, CA	16
HB 133 – Checking the Net Contents of Packaged Goods, Overview	10/16/19	Richmond, VA	27
Webinars			
HB 130 – Price Verification	06/18/19	Web-based	17
HB 130 – Uniform Pkg & Labeling Reg	06/19/19	Web-based	10
HB 133 – Pkg & Labeling Overview	09/03/19	Web-based (NJ W&M Assn)	75
Legal Metrology Devices			
Audit Trails – Overview	09/11/19	Park City, UT (WWMA)	75
Retail Motor-Fuel Dispensers – Short (3-day)	05/06/19	Canton, OH (CWMA)	24
	09/09/19	Park City, UT (WWMA)	13
Liquefied Petroleum Gas Liquid-Measuring Systems	06/24/19	Nashville, TN	16
Vehicle-Tank Meters & Loading-Rack Meters, Combined	06/10/19	Lawrence, KS	26
Webinars			
Audit Trails – Overview	09/04/19	Web-based (NJ W&M Assn)	75

1

NIST OWM Training Scheduled for 2020		
Area/Course Name	Dates	Location
Laboratory Metrology		
Advanced Mass Seminar	06/01/20	Gaithersburg, MD
Balance and Scale Calibration Uncertainties	01/27/20	Gaithersburg, MD
Balance and Scale Calibration Uncertainties – IAAO Participants Only	07/13/20	Gaithersburg, MD
Fundamentals of Metrology	02/03/20	Gaithersburg, MD
	02/10/20	Gaithersburg, MD
Fundamentals of Metrology – IAAO Participants Only	07/20/20	Gaithersburg, MD
Mass Metrology Seminar	03/02/20	
	10/19/20	Gaithersburg, MD
Volume Metrology Seminar	04/20/20	Gaithersburg, MD
Regional Measurement Assurance Programs		
Southeast Measurement Assurance Program	03/23/20	Frankfort, KY
Western Regional Assurance Program	05/04/20	Sparks, NV
Northeast Measurement Assurance Program	09/14/20	Hartford, CT
Southwest Assurance Program	09/28/20	Las Cruces, NM
MidAmerica Measurement Assurance Program	10/05/20	Indianapolis, IN
Webinars		
Basic Uncertainty Concepts	03/05/20	Web-based
Calibration Certificate Evaluation (2-day session)	01/23/20	Web-based
Conducting an Effective Management Review	02/13/20	Web-based

Internal Auditing Best Practices	02/27/20	Web-based
Measurement Systems for Legal Metrology	08/12/20	Web-based
Software Verification & Validation	02/20/20	Web-based
Packaging & Price Verification		
HB 130 – Uniform Packaging/Labeling Regs	05/18/20	Sacramento, CA
HB 133 – Checking Net Contents of Packaged Goods, Basic	05/04/20	Saratoga Springs, NY (NEWMA)
Webinars		
HB 130 – Price Verification	03/05/20	Web-based
	07/22/20	Web-based
HB 130 – Overview Packaging/Labeling Reg	03/26/20	Web-based
	07/23/20	Web-based
HB 133 – Checking Net Contents of Packaged Goods - Overview	08/05/20	Web-based
Legal Metrology Devices		
High-Precision Scales	05/19/20	Wisconsin Dells, WI (CWMA)
Liquefied Petroleum Gas Liquid-Measuring Systems	06/08/20	Sioux Falls, SD
Retail Motor-Fuel Dispensers	5/11/20 (tentative)	[City TBD], LA
Vehicle and Axle-Load Scales	Fall 2020	Harrisonburg, VA
Vehicle-Tank Meters (by invitation only)	04/27/20	[City TBD], CA
Webinars		
Reading Test Measures & Provers	Spring/Summer 2020	Web-based

1 Ms. Butcher thanked the jurisdictions who have hosted the many NIST training seminars, recognizing the effort
 2 required to host these events and coordinate the logistics. Butcher also recognized co-instructors who have assisted
 3 in presenting these events.

4 The Committee heard comments from several people who commented jointly on Item EDU-2 and EDU-3. Ms. Fran
 5 Elson-Houston (OH) expressed appreciation for the NIST seminars. She also noted that her agency isn't always able
 6 to provide raises or monetary recognition for employees, but she has found that another way to reward and leverage
 7 good employees is providing them the opportunity to participate in train-the-trainer type of education and present
 8 training seminars. Mr. Doug Rathbun (IL) echoed Fran's comments regarding the value of NIST classes. Mr. Charlie
 9 Stutesman (KS) also recognized the value of the NIST seminars and noted, that jurisdictions or individuals who are
 10 aware of NIST training and are not leveraging this training are missing out on a great opportunity for quality education.

11 July 2020 NCWM Virtual Technical Sessions: During its virtual technical discussions in July 2020, the Committee
 12 heard a presentation from Tina Butcher (NIST OWM) on NIST OWM training activities during the period of January
 13 2020 to July 2020. This included training and activities in three of the OWM's programs, including the Laboratory
 14 Metrology Program; the Laws and Metric Program; and the Legal Metrology Devices Program. Mrs. Butcher reported
 15 all three programs have made a concerted effort to provide training and professional development resources for
 16 weights and measures jurisdictions and service companies since the onset of the COVID-19 pandemic. A summary
 17 of each area follows.

18 **Laboratory Metrology Program**

19 The following summarizes activities in the NIST OWM Laboratory Metrology Program:

- 20 • **Lab Metrology Training – General (Online)**
 - 21 ○ Balance and Scale Calibration and Uncertainty Seminar – Jan. 2020 (8 trained)
 - 22 ○ Fundamental of Metrology Seminar – Feb. 2020 (16 trained)
 - 23 ○ Mass Seminar – Mar. 2020 (8 trained)
 - 24 ○ Basic Uncertainty Webinar – Mar. 2020 (5 trained)
 - 25 ○ Software Validation and Verification Webinar – Feb. 2020 (6 trained)

- 1 ○ Calibration Certificate Evaluation Webinar – Feb. 2020 (12 trained)
- 2 ○ Internal Auditing Webinar – Feb. 2020 (14 trained)

3

4 • **Regional Metrology Association Training (Online)**

- 5 ○ SEMAP/NEMAP training on 17025 and Handbook 105-1 – Apr. 2020 (51 trained)
- 6 ○ SEMAP Round table and PT Reporting and Planning – Apr. 2020 (33 trained)
- 7 ○ SWAP/WRAP training on 17025 and Handbook 105-1 – May 2020 (50 trained)
- 8 ○ WRAP Round table and PT Reporting and Planning – May 2020 (29 trained)
- 9 ○ MidMAP training on 17025 and Handbook 105-1 – Jun. 2020 (22 trained)

10 Also at the July session, Mrs. Butcher reported on the following Upcoming Training Opportunities (some now
11 completed):

12 • **Upcoming Training**

- 13 ○ Fundamentals of Metrology and LAP Problems Preparation Course (Sept. 2020 and Jan. 2021)
- 14 ○ Laboratory Metrology Information Hour – On the Job Training and Mentoring New Employees
15 (Aug. 4, 2020)
- 16 ○ State Laboratory Annual Submission Process Webinar (Sept. 10, 2020)

17 The Laboratory Metrology Program has been working diligently to develop web-based versions of laboratory
18 metrology training, noting that the web-based version of the Fundamentals of Metrology and LAP preparation course
19 scheduled for September and January will be used to provide formalized training to new Metrology staff while in-
20 person training is not allowed at NIST due to the COVID-19 pandemic.

21 OWM is pleased to announce that, in the months following the July virtual session, Dr. Micheal Hicks has been
22 officially appointed as Program Leader for the NIST OWM Laboratory Metrology Program.

23 **Laws and Metric Program**

24 The Laws and Metric Program cancelled all previously-scheduled in-person courses as of April 2020 due to the
25 COVID-19 pandemic.

26 Since April 2020, the Laws and Metric Program offered three previously-developed webinars in the following areas
27 and will continue to offer these every four to eight weeks:

- 28 • Examination Procedure For Price Verification, NIST HB 130 (2 hr)
- 29 • Overview of the NIST HB 130 Uniform Package and Labeling (UPLR) and Uniform Method of Sale (MOS)
30 of Commodities Regulations (2 hr)
- 31 • “NIST Handbook 133 – Checking the Net Contents of Packaged Goods - Overview ” (2.5 hr)

32 As of June 2020, OWM opened its webinars to industry at no charge.

33 The following summarizes webinars conducted by David Sefcik of OWM’s Laws and Metric Program in the period
34 of Mar. 24, 2020 to Jun. 18, 2020:

- 35 • Twenty-three webinars from Mar. 25, 2020 to Jun. 18, 2020:
 - 36 ○ 9 Price Verification
 - 37 ○ 8 Package and Labeling/Method-of-Sale
 - 38 ○ 6 NIST HB133 Overview
- 39 • Total attendance of 1,179 students, with an average of 51 students per class
- 40 • Student affiliations:
 - 41 ○ 39 Different States (regulatory officials)
 - 42 ○ 8 Industry members
 - 43 ○ 3 Individuals Outside United States

1 The Laws and Metric Program is pleased to offer three new webinars developed by Ken Butcher and presented by
2 David Sefcik, beginning in Fall 2020:

- 3 • ***Method of Sale & Test Procedure for Packages of Animal Bedding – 2 hr***
 - 4 ○ Covers the different types of animal bedding, method of sale, test equipment, audit and test
 - 5 procedure, and documentation and evaluation of test results.
 - 6
- 7 • ***Method of Sale and Test Procedure for Packages of Mulch & Soil Labeled by Volume – 2 hr***
 - 8 ○ Covers the different types of mulch and soil and how they are sold (method of sale), the labeling
 - 9 requirements, test equipment, sampling (and alternative sampling), test procedure, and evaluation
 - 10 of test results.
 - 11
- 12 • ***Weights & Measures Inspections - Evidence, Search and Seizure, and Due Process – 2 hr***
 - 13 ○ Provides an overview on how the U.S. Constitution, the Bill of Rights, Laws, and Court decisions
 - 14 control how weights and measures inspections must be conducted. You will learn about the powers
 - 15 and duties of the Director and the special police powers of an official, as outlined in NIST Handbook
 - 16 130, Uniform Weights and Measures Law.
 - 17 ○ Topics include a checklist for “opening” and “closing” an inspection; consent; search and seizures
 - 18 under the 4th Amendment of the U.S. Constitution; defining evidence and provide suggestions on
 - 19 collecting, protecting and using it to support enforcement actions evidence; enforcement actions and
 - 20 recommended compliance procedures; and model guidelines for the administrative review process.

21 **Legal Metrology Devices Program**

22 As with the two other program areas, the Devices Program was forced to postpone the following training courses
23 originally scheduled during the period of Apr. 2020 to May 2021:

- 24 • Precision Scales (CWMA)
- 25 • Vehicle Scales (VA)
- 26 • Liquefied Petroleum Gas Liquid-Measuring Devices (SD)
- 27 • Retail Motor-Fuel Dispensers (LA)
- 28 • Vehicle-Tank Meters (CA)
- 29 • Vehicle-Tank Meters (AL)

30 While the Devices Program did not have materials ready to present in a virtual format, the Devices Program staff
31 worked to develop other tools and information that could assist weights and measures officials and service personnel
32 working from home on their personal professional development during the restrictions of the pandemic.

33 The Devices Program staff developed a series of seven “study guides” designed for use by weights and measures
34 officials and service personnel to enhance and strengthen their knowledge of specific areas of legal metrology
35 inspection and testing. These study guides are not intended to be a comprehensive summary of all training and
36 development opportunities recommended for inspectors working in a specific topic area. Rather, they are intended to
37 help individuals in their professional development by targeting the use of information and resources available on the
38 NIST OWM website. Study guides are particularly ideal for use by individuals who are working remotely and are
39 striving to enhance and strengthen their technical knowledge.

40 Included in each study guide are the following:

- 41 • An overview of resources available on the NIST OWM website, including self-study course material; videos;
42 and newsletter articles and guidance documents on legal metrology issues.
- 43 • Suggestions for how each of these resources might be used for either independent, individual study or by
44 groups of inspectors/service personnel led by an instructor or supervisor.
- 45 • Information on other training opportunities, including both on-line training and in-person instructor-led
46 training and other resources for professional development.

1 These study guides are intended for use in conjunction with other resources on the NIST OWM website, including
2 Handbooks 44, 130, and 133.

3 Study guides have been developed and posted on OWM's web site for the following field inspection areas:

- 4 • Grain Moisture Meters and NIR Grain Analyzers
- 5 • Measuring – Retail Motor-Fuel Dispensers
- 6 • Measuring – Large Meters
- 7 • Measuring - Liquefied Petroleum Gas Liquid-Measuring Devices
- 8 • Packaging and Labeling Inspections
- 9 • Weighing – Small Scales
- 10 • Weighing – Large Scales

11 These study guides are available for download free of charge at following link:

12 <https://www.nist.gov/pml/weights-and-measures/legal-metrology-devices/training-materials#studyguides>

13 In addition to the study guides, Rick Harshman of the Devices Program developed a Technical Article titled “Making
14 Sense of “Min” on Class I and Class II Scales.” This explains the concept of “Min” and provides guidance on its use
15 and application in transactions encountered by jurisdictions which are reportedly regulating a growing number of
16 Class I and Class II scales. OWM developed a new feature called a “Knowledge Check” to accompany this article.
17 The Knowledge Check serves as a tool for jurisdictions who might want to quiz their employees on their knowledge
18 retention after assigning them the task of reading the article. Depending on feedback, the Devices Program may
19 include Knowledge Checks as a regular accompaniment to its technical articles.

20 **General – OWM Training:**

21 All in-person OWM training seminars have been postponed until further notice. OWM hopes to begin rescheduling
22 in-person training seminars in all program areas sometime in 2021; however, OWM not currently making specific
23 commitments pending changes in restrictions related to the COVID-19 situation that would help ensure the safety of
24 its students and staff involved in such training.

25 It is unclear how pandemic-related restrictions will affect OWM's future in-person training. The decision to resume
26 in-person classes will be driven by Centers for Disease Control recommendations local pandemic restrictions; and
27 travel restrictions for staff and students. OWM is also considering the impact of social distancing requirements on
28 classroom size and configuration and ability to present to groups.

29 In recent months, a team of training developers and facilitators within OWM has been working to consider how OWM
30 might restructure its training program to include more virtual offerings. In addition to considering which existing (or
31 yet-to-be-developed) courses might lend themselves to training in a virtual format, this team has discussed the
32 importance of incorporating some equivalent of the “hands-on” element that is a cornerstone of field inspection
33 courses and the distinction between training and technical presentations. OWM is exploring the idea that, should
34 resources permit it, it may be possible to record some webinar offerings at some point in the future; these could
35 possibly be made available “on demand” and accompanied by periodic question and answer sessions with a live
36 instructor. OWM is continuing to explore the use of technology and available features to adapt its courses to a virtual
37 format and is also considering whether a “hybrid” approach might be used in which a portion of an existing course
38 could be presented virtually and followed by smaller, in-person classes to incorporate a hands-on demonstration and
39 student assessment.

40 While this shift in thinking was driven initially by the restrictions of the COVID-19 pandemic, OWM has recognized
41 the value of providing virtual courses and training events as a way of providing more training opportunities to a larger
42 number of OWM customers. Thus, while OWM expects to resume offering in-person training opportunities when
43 conditions once again permit, OWM sees the value of continuing to include a virtual component to its training even
44 when pandemic restrictions are lifted.

1 Ms. Butcher will provide an annual update on OWM’s training activities at the 2021 NCWM Interim Meeting.

2 Ms. Butcher thanked the jurisdictions who have hosted the many NIST training seminars, recognizing the effort
3 required to host these events and coordinate the logistics. She also recognized co-instructors who have assisted in
4 presenting these events.

5 NCWM 2020 Interim Meeting: The Committee heard comments from several people who commented jointly on Item
6 EDU-2 and EDU-3. Ms. Fran Elson-Houston (OH) expressed appreciation for the NIST seminars. She also noted
7 that her agency isn’t always able to provide raises or monetary recognition for employees, but she has found that
8 another way to reward and leverage good employees is providing them the opportunity to participate in train-the-
9 trainer type of education and present training seminars. Mr. Doug Rathbun (IL) echoed Fran’s comments regarding
10 the value of NIST classes. Mr. Charlie Stutesman (KS) also recognized the value of the NIST seminars and noted,
11 that jurisdictions or individuals who are aware of NIST training and are not leveraging this training are missing out
12 on a great opportunity for quality education.

13 **Regional Association Comments:**

14 WWMA 2020 Annual Meeting: Ms. Tina Butcher (NIST OWM) provided a presentation on NIST OWM training
15 activities during the period of January to July. She noted that this presentation was provided during the NCWM PDC’s
16 virtual meeting in July 2020. Ms. Butcher highlighted OWM’s efforts to support weights and measures jurisdictions
17 by providing training and other professional development materials in a virtual format during the time that restrictions
18 of the COVID-19 pandemic prevented field inspectors and service personnel from working in field installations.

19 Ms. Butcher also noted OWM is taking the opportunity to consider how this virtual training might be incorporated
20 into OWM’s regular training offerings and rather than just adding in virtual classes. OWM is trying to be strategic in
21 considering how virtual offerings can be integrated into OWM’s overall training program even following the
22 pandemic. In the future, OWM may offer multiple formats and consider hybrid approaches such as presenting the
23 lecture portions online and conducting hands-on portions in person with smaller classes held back-to-back. OWM is
24 considering various approaches that might not only help its trainers to continue to provide training during the pandemic
25 restrictions, but that would also allow OWM to reach more people than is possible with in-person classes alone. OWM
26 is mindful that a very important part of the in-person classes is the hands-on portion, so it’s necessary to consider
27 different options to ensure what is provided will still meet the needs of the jurisdictions and students. There may be
28 various combinations of options that could be used.

29 The Committee heard comments from Ms. Cadence Matijevich (NV) who commented that Nevada appreciates all the
30 work that NIST did to provide virtual training during the pandemic. The options provided allowed field inspectors
31 who were not able to do normal inspection work to spend time on professional development, making lemonade out of
32 lemons. She expressed an appreciation for all the training and resources provided by NIST OWM. Ms. Michelle
33 Wilson (AZ) echoed Cadence’s comments. She asked if NIST has considered recording training events and posting
34 the videos as “on demand” training, noting this would be particularly helpful for new inspectors. Ms. Wilson also
35 asked about the use of field trainers to supplement the “hands on” portion of classes, with the idea that the field trainers
36 might be able to conduct demonstrations to accompany the online training. Kathy de Contreras (California Division
37 of Measurement Standards (DMS)) encouraged NIST to continue to offer these types of classes and the use of webinars
38 and train-the-trainers.

39 Ms. Butcher noted OWM has considered the idea of on-demand training. A drawback, particularly for more complex
40 topics is the lack of ability for a student to ask questions during the seminar. However, OWM has also considered the
41 idea of developing recorded presentations and supplementing that with periodic Q&A sessions as a follow-up. She
42 noted OWM is also open to ideas for ways to incorporate alternatives for the hands-on portions through video and
43 other technology links with field sites.

44 SWMA 2020 Annual Meeting: Mrs. Tina Butcher (NIST OWM) gave a presentation on EDU – 2 which included
45 an overview of web-based training and other developmental resources offered by NIST OWM between January and
46 July 2020. The presentation gave statistics on participants the program reached. Mr. Paul Floyd (Louisiana) thanked
47 Mrs. Butcher and NIST OWM for developing and offering the webinars. Mr. Phillip Wright (Texas) followed up
48 with comments thanking Mrs. Butcher and NIST OWM and that he was encouraged to see the direction of the training
49 program. Mr. Kenneth Ramsburg (Maryland) again thanked NIST OWM for being supportive and producing a robust

1 training program and said he and his staff appreciated the trainings and attended trainings for price verification, and
2 Laboratory Metrology. Mr. Ramsburg also commented that webinars for Service Companies and Technicians would
3 be beneficial beginning with the retail motor fuel dispenser companies. He noted that, due to pandemic restrictions,
4 service companies are not attending their jurisdiction's normal service person training; with the relatively high
5 turnover in the service industry, this has created a gap in service personnel's knowledge of legal metrology
6 requirements. Mr. Ed Coleman (Tennessee) thanked NIST OWM for the trainings and agreed with Mr. Ramsburg
7 that a webinar program for Service Companies and Technicians would be a great addition.

8 NEWMA 2020 Interim Meeting: Ms. Tina Butcher (NIST OWM) provided a presentation on NIST OWM training
9 activities during the period of January to July. She noted that this presentation was provided during the NCWM PDC's
10 virtual meeting in July 2020. Ms. Butcher highlighted OWM's efforts to support weights and measures jurisdictions
11 by providing training and other professional development materials in a virtual format during the time that restrictions
12 of the COVID-19 pandemic prevented field inspectors and service personnel from working in field installations. She
13 noted the shift to include more virtual training options has a profound impact on OWM's ability to reach more people
14 than it can for in-person classes alone. Mrs. Butcher also noted OWM is taking the opportunity to consider how this
15 virtual training might be incorporated into OWM's regular training offerings rather than just adding in virtual classes.
16 OWM is considering how virtual offerings can be integrated into OWM's overall training program even following the
17 pandemic. In the future, OWM may offer multiple formats and consider hybrid approaches such as presenting the
18 lecture portions online and conducting hands-on portions in person with smaller classes held back-to-back. OWM is
19 considering various approaches that might not only help its trainers to continue to provide training during the pandemic
20 restrictions, but that would also allow OWM to reach more people than is possible with in-person classes alone. OWM
21 is mindful that a very important part of the in-person classes is the hands-on portion, so it's necessary to consider
22 different options to ensure what is provided will still meet the needs of the jurisdictions and students. There may be
23 various combinations of options that could be used.

24 The Committee heard comments from Cheryl Ayer who expressed interest in having this training available to service
25 agencies and the possibility of including online videos of the webinars that could be viewed by service agencies. Mrs.
26 Butcher noted that, while NIST's training has been oriented to support regulatory officials in their implementation of
27 NIST standards and test procedures, industry has been welcomed into many classes and NIST would continue to do
28 so. She commented that having an industry presence in classes has been very beneficial to both the industry
29 participants and regulators alike. She noted OWM has discussed the possibility of recording webinars for future
30 viewing and work is underway in one area of training to explore this possibility. In the meantime, OWM will focus
31 on increasing its virtual options. She also noted that, given the complexity of the material, students will likely have
32 questions about specific elements of a training session. OWM is considering how to incorporate this into its structure,
33 considering possibilities such as posting of frequent questions supplemented by periodic live question and answer
34 webinar sessions on a given class with a live instructor. Ross Andersen (NY, retired) commented that he has developed
35 and posted videos on YouTube on the technical issue of "d" and "e" and encourages others to share similar technical
36 topics via YouTube. While not speaking to the videos posted by Mr. Andersen, Cheryl Ayer (NH) commented
37 jurisdictions need to ensure the validity and accuracy of procedures illustrated in videos posted on YouTube. Mr.
38 Andersen noted the authors of such videos would need to take responsibility for ensuring that accuracy.

39 PDC Chair, Marc Paquette observed his staff found the NIST offerings to be very beneficial and made specific
40 recognition of a newly offered NIST OWM webinar on Evidence, Search and Seizure, and Due process. He
41 encouraged members to check out the virtual offerings NIST is providing. The Committee greatly supports the
42 ongoing efforts of NIST OWM in modifying its training opportunities to include more virtual options, particularly
43 during the COVID-19 pandemic; this training has met the need of many jurisdictions who have relied on this during
44 the restrictions brought on by the pandemic. The Committee encourages jurisdictions and industry to consider the use
45 of web-based platforms to extend their own training opportunities through group sessions and training as well as take
46 advantage of videos and other training resources available online.

47 CWMA 2020 Interim Meeting: Ms. Tina Butcher (NIST OWM) provided a presentation on NIST OWM training
48 activities during the period of January to July. She noted that this presentation was provided during the NCWM
49 PDC's virtual meeting in July 2020 and at the three prior regional weights and measures association meetings. Mrs.
50 Butcher highlighted OWM's efforts to support weights and measures jurisdictions by providing training and other
51 professional development materials in a virtual format during the time that restrictions of the COVID-19 pandemic
52 prevented field inspectors and service personnel from working in field installations. She noted the shift to include

1 more virtual training options has a profound impact on OWM's ability to reach more people than it can for in- person
2 classes alone. Mrs. Butcher also noted OWM is taking the opportunity to consider how this virtual training might be
3 incorporated into OWM's regular training offerings and rather than just adding in virtual classes. OWM is
4 considering how virtual offerings can be integrated into OWM's overall training program even following the
5 pandemic. In the future, OWM may offer multiple formats and consider hybrid approaches such as presenting the
6 lecture portions online and conducting hands-on portions in person with smaller classes held back-to-back. OWM is
7 considering various approaches that might not only help its trainers to continue to provide training during the
8 pandemic restrictions, but that would also allow OWM to reach more people than is possible with in-person classes
9 alone. OWM is mindful that a very important part of the in-person classes is the hands-on portion, so it's necessary
10 to consider different options to ensure what is provided will still meet the needs of the jurisdictions and students.
11 There may be various combinations of options that could be used.

12 Ms. Elizabeth Lambert (MO) noted in Missouri, Lab Manager, Kevin Upshulte and several of their inspectors have
13 taken the Evidence, Search, and Seizure online course and they all said it was great and they got a lot out of information
14 out of the course. Mrs. Butcher noted she will share this feedback with the NIST OWM team responsible; Ken Butcher,
15 who developed the webinar, and David Sefcik, who has been presenting it. Mr. Doug Rathbun (IL) thanked Mrs.
16 Butcher and all the people at NIST for their hard work. Illinois' program has two metrology staff members in training
17 who are anxious to get back to in-person training and they all appreciate how NIST has stepped up in this and other
18 arenas to present online training. Ivan Hankins (Iowa Weights and Measures) concurred and shared he also
19 participated in the "Search and Seizure" webinar and found it jam packed with information. He would like to take the
20 seminar again to catch anything he may have missed while taking notes. He noted David Sefcik (NIST OWM) is a
21 wonderful instructor and NIST has done a great job with this. Mr. Hankins asked if there might be a possibility of
22 having "private tutoring" once you are able to travel. For example, Mr. Sefcik might travel to Iowa and work one-on-
23 one with individuals or small groups to provide training. Mr. Hankins noted that it is difficult to have full dialog and
24 get all questions answered during the short space of a webinar, particularly if the primary mechanism for asking
25 questions is to type questions into a chat box.

26 Mrs. Butcher reported that at present NIST OWM is restricted from traveling; however, once travel is once again
27 permitted NIST OWM will consider various options for delivering training based upon any pandemic-related
28 restrictions that remain in place. One of these scenarios might include something like Ivan suggested or even modified
29 classes in which a much smaller group of students participate in a classroom setting coupled with some online training
30 in advance. This will depend on the conditions and restrictions. Mrs. Butcher also reported that a small group of
31 OWM staff have been developing a strategy for OWM's online training, not just during the pandemic restrictions
32 but afterward since this mechanism provides an opportunity to reach far more customers than in-person alone. She
33 acknowledged Ivan's point about the challenges of discussions during a webinar and noted OWM has been considering
34 offering some "Information Hour" sessions (patterned after those used in the Laboratory Metrology Program) during
35 which a particular technical topic would be discussed in a more informal format allowing participants to ask questions
36 and discuss technical issues. Tina also shared that another option OWM has used in the past prior to pandemic
37 restrictions is that of conducting a webinar to a group of people located in the same (or several) rooms. A laptop and
38 projector are set up and logged into a webinar to be presented by OWM and a microphone is used to provide sound
39 to the group of people in the room. The webinar is conducted, and participants can ask questions and talk amongst
40 themselves much like a normal, in-person classroom.

41 John Albert (Missouri Weights and Measures) made a similar comment via the Zoom meeting chat, sharing they
42 have required all their inspectors to take this training. Ivan Hankins noted Iowa has done the same. Jeff Fantozzi
43 (Erie County, Ohio) commented that following the death of Fran Elson-Houston, past director of Ohio Weights and
44 Measures, there have been some challenges getting training events up and running again, and they very much
45 appreciate the training NIST has been able to provide.

46 **EDU-3 I Instructor Improvement**

47 NIST OWM has provided legal metrology training for weights and measures jurisdictions and industry for many years
48 but does not have the resources to respond to the numerous training requests it receives. OWM has long recognized
49 that there are many individuals with extensive legal metrology experience who have the skills needed to provide this
50 type of training. OWM hopes to draw from this pool to develop trainers who can present schools with NIST, thus

1 leveraging NIST resources; providing more timely classes; and providing a way to more broadly share the valuable
2 expertise these individuals possess. In the past ten years, NIST OWM has taken on more field inspection classes than
3 it would otherwise be able to do because of the co-instructors drawn from its current pool of trainers.

4 Over the past ten years, OWM renewed its efforts to develop trainers, including the following.

- 5 • NIST held multiple trainer workshops and webinars designed to assist individuals in the community with
6 technical expertise to enhance and strengthen their abilities as “trainers.”
- 7 • NIST identified tools and resources to assist trainers in their individual professional development and in
8 conducting their own self-assessments of their knowledge, skills, and abilities as trainers.
- 9 • NIST provided multiple grants for a combined total of \$212,000 to the NCWM intended to pay travel costs
10 of individuals to travel within their regions to conduct training and to participate in NIST training for
11 trainers. This partnership has enabled NIST to bring in candidates for NIST-sponsored training such as
12 “train the trainer” classes and to participate in NIST technical training schools.
- 13 • NIST has made a concerted effort to involve external co-instructors in numerous NIST training events and
14 continues to use these co-instructors to the extent possible. Through an application process, in collaboration
15 with weights and measures directors and nominated training candidates, NIST has identified a group of
16 people who are now working with NIST to develop the knowledge, skills, and abilities to work with NIST
17 staff in presenting technical training schools. Several candidates in the NIST Trainer Program have already
18 served as co-instructors for NIST technical training schools and have done an excellent job. OWM
19 sincerely appreciates the willingness of those trainers and their directors who have supported their
20 participation to devote time to making these seminars successful.

21 A list of all people who have attended a NIST “Train the Trainer” class or associated events has been posted on the
22 NCWM website. Many people on this list have attended NIST “train the trainer” events and workshops but have not
23 served as co-instructors for NIST classes and, in some cases, have not attended NIST technical training schools in the
24 topic areas in which they have declared an interest in serving as trainers and for which they are listed on the website.
25 Conversely, there are people on this list who have attended the workshops and NIST technical training seminars and
26 have also served as co-instructors in NIST training seminars. Thus, there is a variation in the experience levels of
27 individuals on this list, particularly with presenting NIST seminars.

28 OWM has not authorized anyone (external to NIST) to independently present “NIST” classes. NIST training seminars
29 on field inspection topics are only held a limited number of times each year. This poses a challenge in sustaining
30 regular interaction and involvement of NIST trainer candidates. Nor does NIST have the resources to develop and
31 sustain the development of all the individuals that have been invited to participate in the NIST trainer program
32 activities and events held in the past. However, even if a candidate has not worked directly with NIST staff in
33 presenting NIST seminars and is not designated to participate as an instructor in a NIST seminar, they and their
34 jurisdictions can benefit from the experience and the candidate can still provide valuable training in their jurisdiction
35 and region. Additionally, NIST OWM is authorized by IACET to issue “Continuing Education Units” for certain
36 training seminars and, as part of this authorization, there are certain provisions that an instructor must follow to meet
37 these requirements.

38 NIST values the expertise that the co-instructors bring to the NIST training events and plans to continue inviting co-
39 instructors to NIST training events. Although the funds provided in past grants to the NCWM have been exhausted,
40 NIST currently plans to pay for the travel expenses of any co-instructor invited to work with NIST on a NIST seminar
41 and hopes these individuals and jurisdictions will continue to assist NIST in this capacity.

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

45 The Committee has reiterated multiple times in the past that the responsibility for the training employee rests with
46 individual organizations (weights and measures jurisdictions and industry alike). While NIST and other training
47 providers offer excellent sources of training and training materials, organizations must develop and manage their own
48 training programs, including developing trainers; establishing individual development plans for employees; and

1 identifying strategies for continually assessing and responding to training needs. The Committee recognizes that NIST
2 OWM cannot possibly train all weights and measures inspectors in the country. The state and municipal jurisdictions
3 have ultimate responsibility for training and qualifying their personnel. To fulfill this responsibility, jurisdictions
4 should be making individual plans to maintain or bolster their training efforts. NIST OWM should be viewed as one
5 vital resource to support that effort. The Professional Development Committee is another resource. The Committee
6 has created and posted on its website, the “Body of Knowledge” to establish uniform learning objectives for weights
7 and measures professionals. In addition, the Committee has posted a Model Field Training Program document on its
8 website. This program outlines methods to evaluate and document training and offers guidance on training new
9 inspectors and taking steps to ensure their ongoing development.

10 See the Committee’s past reports for background information on this item along with other details on available tools
11 for trainer development and NIST OWM’s efforts and partnership with the NCWM to continue this work.

12 NCWM 2019 Interim Meeting: No comments were heard on this item. Since NIST was not in attendance at the 2019
13 Interim Meeting, no updates were available; however, updated information was later provided and included in the
14 Committee’s Interim Report.

15 NCWM 2019 Annual Meeting: Ms. Julie Quinn (MN, Retired) suggested that NIST OWM consider allowing
16 qualified individuals to take advanced NIST classes if proven capable by means other than passing a basic NIST exam.
17 Ms. Rachele Miller (WI) suggested that for example passing an NCWM professional certification in package
18 checking could be a suitable alternate prerequisite for NIST advanced package checking training. NIST OWM
19 indicated that they will discuss the possibility of alternate prerequisites. Note: Following the 2019 Annual Meeting,
20 NIST decided to restructure its class offerings in this area in such a way that the prerequisite is no longer required.

21 Ms. Michelle Wilson (AZ) stressed the importance of allowing/providing external trainers and requested that those
22 trained by NIST via the train-the-trainer program be certified as qualified trainers.

23 NCWM 2020 Interim Meeting: The Committee heard several joint comments involving Items EDU-2 and EDU-3.
24 See EDU-2 for details.

25 July 2020 NCWM Virtual Technical Sessions: During its virtual technical discussions in July 2020, the Committee
26 heard an update from Tina Butcher (NIST OWM) regarding NIST’s instructor training program. Mrs. Butcher
27 reported that, due to the restrictions of the COVID-19 pandemic which necessitated the postponement of in-person
28 training venues for OWM courses, OWM has not done any work in the area of instructor training. However, Mrs.
29 Butcher noted OWM remains committed to continuing to work with its corps of external trainers and very much
30 appreciates the generosity of both the trainers who share their time and expertise as co-instructors as well as that of
31 the administrators who allow these trainers to devote time to this work. Mrs. Butcher observed she has personally
32 found these trainers bring a wealth of knowledge and expertise to the classes and greatly enhance the courses. OWM
33 also looks forward to exploring ways in which these trainers can play

34 **Regional Association Comments:**

35 WWMA 2020 Annual Meeting: Tina Butcher (NIST OWM) noted OWM has been using external trainers as co-
36 instructors with great success for some time; however, with the pandemic restrictions has postponed its in-person
37 classes until conditions allow this again. Kathy de Contreras (California DMS) encourages use of Train the Trainer
38 and to provide more training sessions to expand the talent pool and to use a hybrid model (webinar and in-
39 person/hands-on training). She pointed out that she and other trainers are nearing retirement. She urged NIST to
40 consider opening a new class of train-the-trainers so that a smooth transition is possible. The use of these local trained
41 staff may allow hands-on training to continue during times when travel by NIST staff is restricted.

42 Michelle Wilson (Arizona) suggested NIST OWM might consider expanding its concept of instructor training
43 approach to engage those people who presently serve as co-instructors to provide instruction for the hands-on portions
44 of the training. She noted that some instructors have strengths in the area of classroom training and others may have
45 stronger skills in demonstrating and presenting instruction on field demonstration. She noted that some field inspectors
46 have lots of expertise in field inspection procedures, but not as much skill or knowledge of classroom training of
47 adults. Perhaps if NIST were to provide the classroom portions in an online format and couple that with the use of
48 these field trainers to provide the hands-on portion, this would play to the field trainers’ strengths. Mrs. Butcher noted

1 these are options that OWM has discussed and is open to and welcomes ideas. OWM recently collected a team of
 2 OWM instructors to begin planning how to best move forward with virtual training approaches, particularly
 3 considering the pandemic.

4 SWMA 2020 Annual Meeting: Mrs. Tina Butcher (NIST OWM) noted that, given the restrictions of the pandemic,
 5 NIST OWM has postponed its previously scheduled in-person training classes. Thus, there are no new developments
 6 in the area of NIST's instructor training program. Mrs. Butcher noted OWM remains committed to continuing to
 7 work with its corps of external trainers and very much appreciates the generosity of both the trainers who share their
 8 time and expertise as co-instructors and to the administrators who allow these trainers to devote time to this work.
 9 These trainers bring a wealth of knowledge and expertise to the classes and greatly enhance the courses. OWM also
 10 looks forward to exploring ways in which these trainers can play a role in virtual course offerings as well. Mr. Phillip
 11 Wright (Texas) commented on the benefits of the Train the Trainer program participation and that it also enhanced
 12 state training programs by the trainer participating on the state level as well as bringing back additional knowledge to
 13 share.

14 NEWMA 2020 Interim Meeting: The Committee received no comments on this item. The Committee would like to
 15 thank NIST OWM for the continuing work with its train the trainer program and the contributions of those trainers
 16 who continue to work in cooperation with NIST to extend our collective training resources.

17 CWMA 2020 Interim Meeting: Ms. Tina Butcher (NIST OWM) reported that no work has been done in the area of
 18 instructor improvement since the onset of the COVID-19 pandemic. Ms. Butcher expressed appreciation for the work
 19 done by those trainers in the program and noted that OWM looks forward to continuing to work with these trainers
 20 who have generously shared their expertise during NIST training events. OWM will also consider how these trainers
 21 might collaborate with NIST in delivering virtual training while pandemic restrictions prevent in-person training
 22 events.

23 The Committee received no comments on this item. The Committee would like to thank NIST OWM for the continuing
 24 work with its train the trainer program and the contributions of those trainers who continue to work in cooperation
 25 with NIST to extend our collective training resources.

26 **EDU-4 I Recommended Topics for Conference Training**

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

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

- 32 • Planning and Coordinating a National Market Place Survey (Ms. Rachelle Miller, WI 2017)
- 33 • The Life Cycle of Petroleum from Well to Retail (Mr. Prentiss Searles, API 2017)
- 34 • The United States Mint at Denver – Gold, Coins and Embezzlement (Mr. Thomas Fesing, 2016)
- 35 • Understanding Transportation Network Systems (Ms. Andrea Ambrose Lobato, Lyft and Mr. Bob O'
 36 Leary, Uber 2016)
- 37 • Regulatory Consideration for Legalized Marijuana (Ms. Julie Quinn, MN and Mr. Nick Brechun, CO 2016)
- 38 • Motor Oil Quality Violations (Mr. Tom Glenn, Petroleum Quality Institute of America, 2014)
- 39 • Making Sense of Electronic Receipts (Mr. Justin Hotard, Vice President and General Manager, NCR
 40 Corporation, 2014)
- 41 • LNG & CNG Motor Fuel – A Technical Briefing from Industry (Mr. Doug Horne, President CVEF, Mr.
 42 Zack Wester, Blu, Mr. Jeff Clarke, NGVA, 2014)
- 43 • Taximeter Technology Advancements (Mr. Matt Daus, International Association of Transportation
 44 Regulators, 2013)
- 45 • Advanced Vehicles and Fuel Quality (Mr. John M Cabaniss, Jr., Association of Global Automakers, 2013)
- 46 • Economic Justification and Demonstrating Value of Weights and Measures (Mr. Tim Chesser, Arkansas

- 1 Bureau of Standards, 2012)
- 2 • Conducting Effective Marketplace Surveys and Investigations (Ms. Judy Cardin, Wisconsin Weights and
 - 3 Measures, 2012)
 - 4 • Public Relations and Customer Service as Regulators (Mr. Doug Deiman, Alaska Division of Measurement
 - 5 Standards/ CVE, 2012)
 - 6 • An Overview of Unit Pricing in the United States (Mr. David Sefcik, NIST OWM, 2011)
 - 7 • Grocery Unit Pricing in Australia (Mr. Ian Jarratt, Queensland Consumers Association, 2011)
 - 8 • Grocery Unit Pricing in Canada (Mr. Ian Jarratt, Queensland Consumers Association, 2011)
 - 9 • The U.S. Hydrogen Measuring System: The Turning Point? (Ms. Kristin Macey, California Division of
 - 10 Measurement Standards, 2011)
 - 11 • Corrosion in Ultra Low Sulfur Diesel Underground Storage Systems (Mr. Prentiss Searles and Ms. Lorri
 - 12 Gainawi, American Petroleum Institute, 2010)
 - 13 • Risk-Based Inspection Schemes (Mr. Henry Oppermann, Weights and Measures Consulting, LLC, 2010)
 - 14 • Diesel Exhaust Fluid (DEF) (Mr. Gordon Johnson, Gilbarco, Inc., and Mr. Randy Moses, Wayne, 2009)
 - 15 • Fuel Volatility and Ethanol Blending (Mr. Jim McGetrick, BP Products, 2009)
 - 16 • Investigative Techniques (Mr. Michael Cleary, Retired, 2009)

17 At the Interim Meeting 2019 the following suggestions from the floor for additional topics were received:

- 18 • Investigative reporting
- 19 • D.E.F. Testing requirements, special considerations (handling, safety, equipment)
- 20 • Differentiation between weight classifier and normal rounding scales
- 21 • Organizing/publishing existing training materials

22 NCWM 2019 Annual Meeting:

- 23 • Mr. Tim Chesser (AR) suggested that a review of the NTEP organization, processes and certificate system
- 24 would be a beneficial topic for training in the future.
- 25 • Mr. Steve Harrington (OR) offered diving into innovations / new areas in metrology (perhaps an industry
- 26 presentation on a new technology). Steve also suggested that we explore advances in modern distributed
- 27 weighing/measuring systems, e.g. future point-of-sale systems.
- 28 • Mr. Mahesh Albuquerque (CO) suggested the topic of emerging fuels, e.g. EV refueling, hydrogen. Mr.
- 29 Ken Ramsburg (MD) added LNG/CNG as a possibility. Mr. Ramsburg also added the possible topic of the
- 30 new SI unit definitions and possible impact on W&M organizations.
- 31 • Mr. Brett Gurney (UT) indicated that a possible topic could be a ‘case study’ of a successfully implemented
- 32 W&M program (state, county or city) as an example.

33 NCWM 2020 Interim Meeting: Ms. Fran Elson-Houston (OH) suggested training on gravimetric testing of motor oils

34 for either a conference technical training session or a regional training; Mr. Mark Lovisa (LA) suggested training on

35 mass flow meters/master meters.

36 **Regional Association Comments:**

37 WWMA 2020 Annual Meeting: No comments were received during open hearings regarding this item. The

38 Committee encourages WWMA members to review the listed training topics and forward suggestions to National

39 Professional Development Committee for future training needs.

40 SWMA 2020 Annual Meeting: Chairman Paul Floyd (Louisiana) asked SWMA members to continue to think about

41 possible topics for training and encouraged them to provide their input to the NCWM PDC. The SWMA PDC received

42 no comments for this item.

43 NEWMA 2020 Interim Meeting: The Committee received no comments on this item during its open hearings.

44 However, PDC Chairman Marc Paquette reviewed some of the suggested training offerings and asked for input from

45 participants.

46 CWMA 2020 Interim Meeting: The Committee received no comments on this item during its open hearings. Acting

47 PDC Chairman, Elizabeth Lambert (Missouri Weights and Measures) encouraged CWMA members to submit

1 suggested topics for training to the NCWM PD Committee.

2 **PMT – PROGRAM MANAGEMENT**

3 **PMT-1 I Safety Awareness**

4 One of the goals of the PDC is to educate jurisdictions on safety issues and to provide resources to help them
 5 implement effective safety and health management programs. The Committee intends to use the safety page at
 6 www.ncwm.com/safety as a place for states to share information and resources to help them address each of the
 7 major steps in creating and maintaining an effective safety program.

8 In July 2017, the Board of Directors created the Safety Task Group to create a safety tool kit to help weights and
 9 measures organizations create or improve their own safety programs. The toolkit is complete and is posted on the
 10 NCWM website at www.ncwm.com/safety.

11 At the 2018 Annual Meeting, the NCWM BOD decided to make the task group a permanent subcommittee associated
 12 with the PDC. The newly formed Safety Subcommittee will assume responsibility for:

- 13 • Maintaining and updating the safety toolkit.
- 14 • Writing and deploying the NCWM annual safety survey, as well as reporting on the results each year.
- 15 • Finding resources and/or developing weights-and-measures-focused materials relating to the top hazards
 16 identified through the safety survey or through developing the toolkit.
- 17 • Building a safety culture and developing safety leadership within the NCWM through participation on the
 18 Safety Subcommittee

19 The Safety Subcommittee is currently working to improve the annual safety survey by:

- 20 • Including questions about near-miss incidents and about incidents resulting in lost or restricted time over
 21 multiple years.
- 22 • Contacting counties and associate members to increase participation.
- 23 • Writing an instruction guide to help participants gather information they need before completing the survey.
 24

25 The results of the 2018 survey were consistent with 2016 and 2017 results. Seven injuries were reported which
 26 resulted in days-away or lost time. All incidents occurred in the field. Five of them were related to
 27 lifting/bending/twisting. The other two were related to slips/trips and falls. Six of the resulting injuries were soft
 28 tissue injuries (sprains, strains, torn joint ligaments, etc.) The remaining injury was a back/neck injury.

29 Although the survey does not currently ask about near-miss incidents, several jurisdictions have shared information
 30 about near-miss incidents which resulted in no days-away or lost time. When the results of all three annual surveys
 31 are compiled, the top four causes of near misses are the same as the top four causes of DART incidents.

1 The following information was provided at the 2019 Interim Meeting:

2 **Summary of 3 Years and 4.3 Million Employee Hours**

Near-Misses = Leading Indicators	
All Near Misses 2016-2018	
Cause	# of Near Misses
Vehicle accident	12
Chemical exposure	4
Bending/lifting/twisting	2
Slips/trips/falls	1
Weather	1
Other	1
TOTAL	21

- 3
- 4
- 5
- 6
- Employees report near misses if they think injuries may show up down the road or if property damage was involved.
 - Employees less likely to report common events like bending/lifting/twisting or slips/trips/falls unless immediately injured.

Injuries = Lagging Indicators			
All Reported Injuries 2016-2018			
Cause	# of Near Misses	60+ Days Lost	60+ Days Restricted
Bending/lifting/twisting	22	6	5
Slips/trips/falls	10	2	1
Vehicle accident	4	1	1
Chemical exposure	1	0	0
Other	1	0	0
TOTAL	21	9	7

- 7
- 8
- 9
- Same leading causes
 - Vehicle accidents in 2nd place (if counting near misses)
 - Once an injury occurs, 20-30% chance of at least 60 days lost!

10 The Safety Subcommittee will focus some of their efforts next year in developing weights and measures materials
11 related to:

- 12
- 13
- 14
- 15
- Bending/Lifting/Twisting
 - Vehicle Accidents
 - Slips/Trips/Falls
 - Chemical Exposure

16 NCWM members are encouraged to review the complete presentation on the 2018 safety survey on the NCWM safety
17 page.

18 The Committee expresses appreciation to the members of the Safety Subcommittee for their willingness to volunteer
19 for this important work.

1 **Safety Subcommittee Members:**

Office	Name	Affiliation
Chair	Lori Jacobson	Retired
Public Sector	Jason Flint	New Jersey
Public Sector	Elizabeth Koncki	Maryland
Public Sector	Brenda Sharkey	South Dakota
Public Sector	Mike Sikula	New York
Private Sector	Tisha Arriaga	Marathon Petroleum, LLC
Private Sector	Bill Callaway	Crompco
Private Sector	Remy Cano	Northwest Tank and Environmental Services
Private Sector	Robert LaGasse	Mulch and Soil Council
Private Sector	John Lawn	Rinstrum, Inc.

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

3 **Regional Safety Liaisons:**

4 **Central Weights and Measures Association (CWMA)**

5 Ms. Brenda Sharkey, South Dakota Inspections, Weights and Measures

6 **Northeastern Weights and Measures Association (NEWMA)**

7 Mr. Michael Sikula, New York Bureau of Weights and Measures

8 **Southern Weights and Measures Association (SWMA)**

9 Ms. Elizabeth Koncki, Maryland Department of Agriculture

10 **Western Weights and Measures Association (WWMA)**

11 Mr. Remy Cano, Northwest Tank & Environmental Services

12 Each region is responsible for providing a safety article for the NCWM newsletter according to the following schedule:

Safety Article Schedule		
Issue 1 (February 2021)	CWMA	January 15, 2021
Issue 2 (May 2021)	NEWMA	April 15, 2021
Issue 3 (September 2021)	SWMA	August 13, 2021
Issue 1 (February 2022)	WWMA	January 15, 2022

13 Thanks to the following individuals for their contributions since the 2019 Annual Meeting:

- 14 • *Don't Get Zapped* – Mr. Brett Gurney (UT)
- 15 • *Check it out! The Happy-list State* – Ms. Elizabeth Koncki (MD)
- 16 • *Safe Path to Lifting* – Ms. Brenda Sharkey (SD)
- 17 • *The Psychology of Safety* – Mr. Ron Armstrong (NWTES)
- 18 • *Back to Your Health* – Ms. Elizabeth Koncki (MD)
- 19 • *Engineering Controls* – Mr. Mike Sikula (NY)

1 2019 NCWM Annual Meeting: Mr. Steve Harrington (OR) suggested that we could publish ‘best ergonomic practices’
2 in daily W&M routines as these tasks undergo hazard analysis, and communicate these recommendations to avoid
3 repetitive motion injury, etc. during daily tasks as they are developed.

4 NCWM 2020 Interim Meeting: The Committee received no comments.

5 **Regional Association Comments:**

6
7 WWMA 2020 Annual Meeting: WWMA PDC Chair, Michelle Wilson announced that PDC member Remy Cano
8 (Northwest Tank & Environmental Services) has graciously agreed to serve as the WWMA Regional Safety Liaison
9 to the NCWM Professional Development Committee. Each region is responsible for providing a safety article for the
10 NCWM newsletter. Mr. Cano recently prepared and submitted an article to the NCWM on behalf of the WWMA.

11 SWMA 2020 Annual Meeting: The SWMA PDC wants to acknowledge SWMA’s Safety Liaison to the NCWM,
12 Elizabeth Koncki (Maryland), for her continued work in this capacity and thanks her for her contributions of safety-
13 related articles to the NCWM Newsletter on behalf of the SWMA. The SWMA PDC received no comments for this
14 item.

15 NEWMA 2020 Interim Meeting: PDC Chairman Marc Paquette reviewed this item and expressed appreciation to
16 Mike Sikula (New York Bureau of Weights and Measures) for his work as NEWMA’s Regional Safety Liaison to the
17 NCWM and the articles Mike has contributed on NEWMA’s behalf. Chairman Paquette also reported that Lori
18 Jacobson (formerly of SD Weights and Measures) has agreed to serve in the capacity as Safety Liaison. Chairman
19 Paquette also shared that the NCWM has decided to establish an additional educational task group on the topic of
20 “Skimmers” as part of the NCWM PDC structure, similar to that used for the topic of “Safety Awareness.” This
21 would allow the structure of the PDC to be used to encourage and maintain education in these and other technical
22 areas.

23 CWMA 2020 Interim Meeting: Acting PDC Chairman, Elizabeth Lambert recognized Brenda Sharkey (South
24 Dakota Weights and Measures) for her work as the CWMA’s Safety Liaison to the NCWM. Ms. Lambert thanked
25 Ms. Sharkey and recognized a recent safety-related article Brenda contributed on CWMA’s behalf to the NCWM
26 newsletter. Ms. Lambert also expressed thanks to Lori Jacobson (formerly of South Dakota Weights and Measures)
27 who has agreed to serve in the capacity as Safety Liaison to the NCWM PDC Committee.

28 Mr. David Aguayo, San Luis Obispo County, California | Committee Chair
29 Mr. Gary Milton, Virginia | Member
30 Mr. Scott Ferguson, Michigan | Member
31 Mr. Paul Floyd, Louisiana | Member
32 Mr. Ethan Bogren, Westchester County, New York | Member
33 Mr. James Pettinato, TechnipFMC | AMC Representative
34 Ms. Lori Jacobson, Retired | Safety Liaison
35 Ms. Tina Butcher, NIST, OWM | NIST Liaison
36 Mr. Jerry Buendel, Retired | Certification Coordinator

37 **Professional Development Committee**