

NEWMA Professional Development Committee (PDC) 2021 Annual Meeting Report

Mr. Marc Paquette, Committee Chair
Vermont

INTRODUCTION

The Professional Development Committee (hereinafter referred to as the “Committee”) submits this Committee Interim Report for consideration by National Conference on Weights and Measures (NCWM). This report contains the items discussed and actions proposed by the Committee during its Interim Meeting in St. Pete Beach, FL, January 13 - 15, 2021. The report will address the 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 acronyms for organizations and technical terms used throughout the agenda are identified in Table B. The first three letters of an item’s reference key are assigned from the Subject Series List. The first three letters of an item’s reference key are assigned from the Subject Series List. The status of each item contained in the report is designated as one of the following: **(V) Voting Item:** the Committee is making recommendations requiring a vote by the active members of NCWM; **(I) Informational Item:** the item is under consideration by the Committee but not proposed for Voting; **(A) Assigned Item:** the Committee has assigned development of the item to a recognized subcommittee or task group within NCWM; **(D) Developing Item:** the Committee determined the item has merit; however, the item was returned to the submitter or other designated party for further development before any action can be taken at the national level; **(W) Withdrawn Item:** the item has been removed from consideration by the Committee.

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

Committees may change the status designation of agenda items (Developing, Informational, Assigned, Voting and Withdrawn) up until the report is adopted, except that items which are marked Developing, Informational, Assigned or Withdrawn cannot be changed to Voting Status.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

An “Item Under Consideration” is a statement of proposal and not necessarily a recommendation of the Committee. Suggested revisions are shown in **bold face print** by ~~striking out~~ information to be deleted and underlining information to be added. Requirements that are proposed to be non-retroactive are printed in ***bold faced italics***. Please refer to www.ncwm.com/publication-16 to review these documents.

All sessions are open to registered attendees of the conference. If the Committee must discuss any issue that involves proprietary information or other confidential material; that portion of the session dealing with the special issue may be closed if (1) the Chairman or, in his or her 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 table. 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
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Table B
Glossary of Acronyms and Terms

Acronym	Term	Acronym	Term
CWMA	Central Weights and Measures Association	OWM	Office of Weights and Measures
NCWM	National Conference on Weights and Measures	PDC	Professional Development Committee
NEWMA	Northeastern Weights and Measures Association	SWMA	Southern Weights and Measures Association
NIST	National Institute of Standards and Technology	WWMA	Western Weights and Measures Association
SETG	Skimmer Education Task Group		

Details of All Items
(In order by Reference Key)

EDU – EDUCATION

EDU-1 I Professional Certification Program

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

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

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

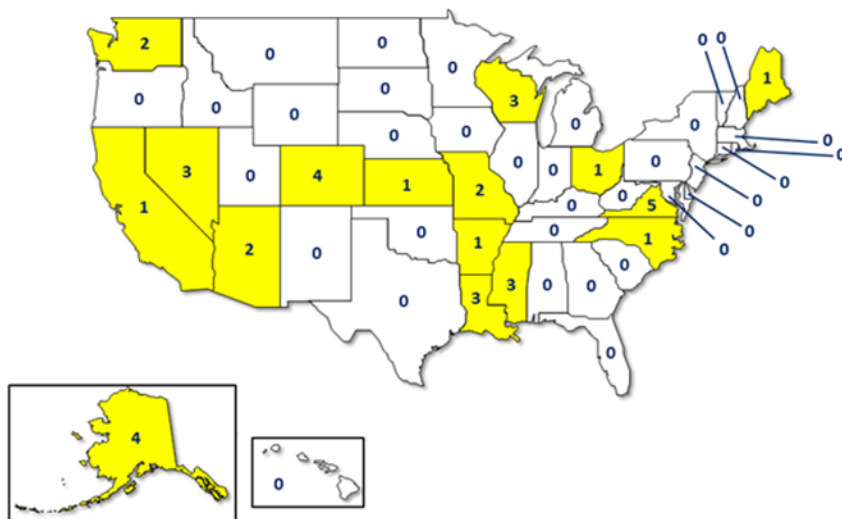
Number of Proctors Per State (as of March 2021)

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

Number of States with Proctors (as of March 2021)

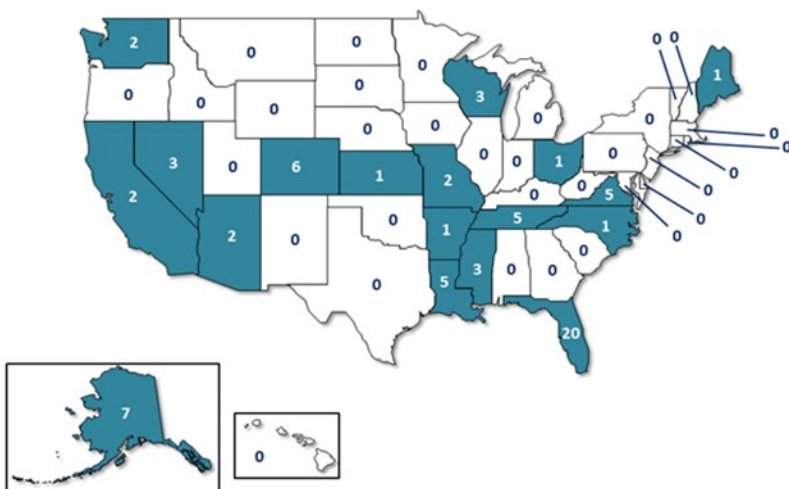
	FY17-18	FY18-19	FY19-20
Basic	10	14	18
Professional	7	11	16

1 **Proctors Per State – Professional Certification Exam**



2

3 **Proctors Per State – Basic Competency Exam**



4

5 The requirements for proctors are posted on the NCWM website at www.ncwm.com/proctoring.

Status of Current Tests

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

NCWM Professional Certificates issued:

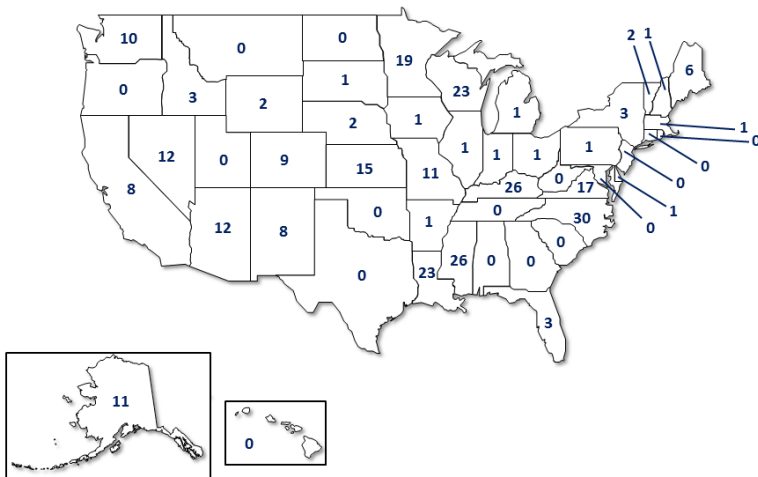
	FY10-11	FY11-12	FY12-13	FY13-14	FY14-15	FY15-16	FY16-17	FY17-18	FY18-19
Exams Passed	44	94	105	62	198	140	142	257	53
Cumulative	44	138	243	305	503	643	785	1,042	1,096

NCWM Professional Certificates issued (cont.):

	FY19-20
Exams Passed	56
Cumulative	1,152

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

Distribution of Certified Professionals per State
Updated: September 2020



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

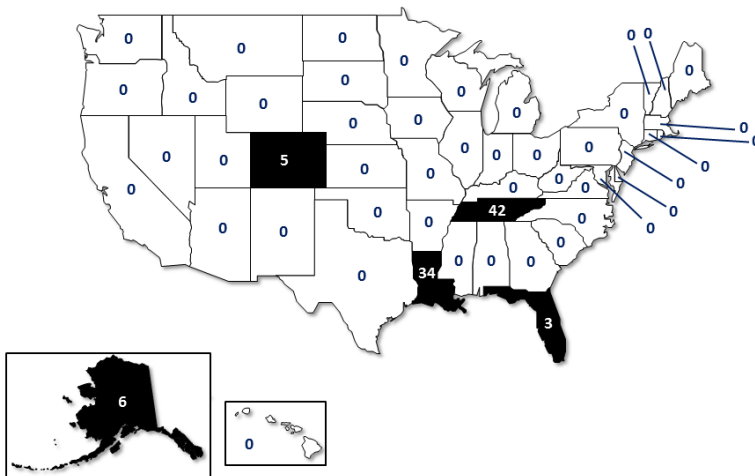
State	Certificates	State	Certificates	State	Certificates
Minnesota	152	Arizona	28	Pennsylvania	7
Missouri	143	Maine	26	Wyoming	7
Wisconsin	84	Nevada	25	Arkansas	6
Maryland	77	New Mexico	23	Delaware	4
Virginia	70	New York	19	Michigan	3
Mississippi	56	Colorado	18	South Dakota	3
North Carolina	52	Connecticut	15	Oregon	2
Washington	50	Indiana	13	Tennessee	2
Kansas	45	Ohio	13	Montana	1
California	41	Private	12	New Hampshire	1
Louisiana	40	Idaho	11	West Virginia	1
Alaska	42	Massachusetts	11		
Nebraska	33	Vermont	8		

- 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.

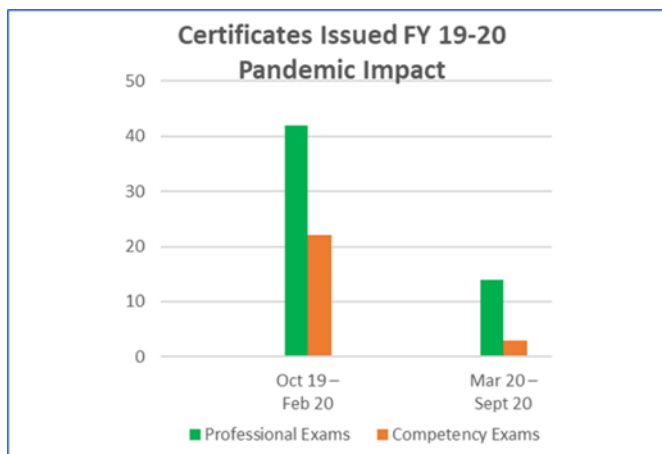
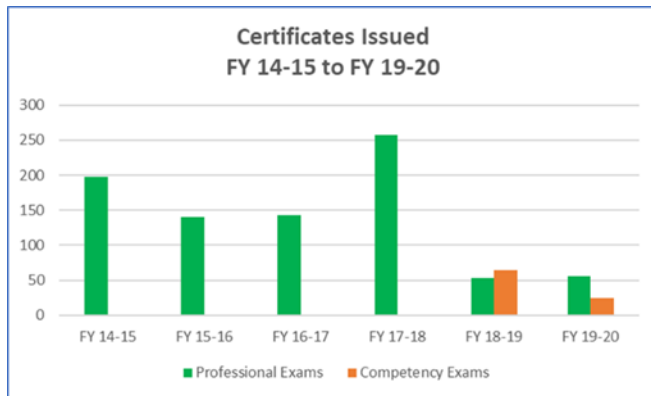
Distribution of Competency Exams per State
 Updated: September 2020



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

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

The following graphs show the impact of the COVID-19 pandemic on certifications issued:



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

NCWM 2020 Annual Meeting: The NCWM Annual Meeting opened in July 2020, but immediately adjourned that meeting due to lack of a quorum brought about by COVID-19 pandemic restrictions. The 2020 Annual Meeting was continued virtually in January 2021. Due to time constraints, NCWM presented only voting items to the membership during that meeting. Since the PDC's agenda did not include any voting items its agenda was not presented during the 2020 Annual Meeting.

NCWM 2021 Interim Meeting: The 2021 NCWM Interim Meeting was held virtually and immediately following the conclusion of the NCWM 2020 virtual meeting.

Mr. Robert Huff (DE) asked if NCWM had considered removing the requirement for proctoring. Mr. Hal Prince (FL) indicated the Board discussed this possibility and the suspension of this requirement would jeopardize the integrity of the exams, and would preclude ever reaching accreditation. We are actively pursuing online proctoring and are hopeful this is something that can be offered soon. Mr. Huff pointed out the decline in participation is obvious and those that would like to renew are quite possibly unable to do so. Mr. Ethan Bogren (Westchester Co., NY) indicated his support for exploring remote proctoring and that currently, lack of access to proctoring is preventing access to the exams for his jurisdiction. Mr. Bogren continued to suggest if access to the exams and/or proctoring was offered as a benefit of NCWM membership, it could be of value to inspectors, and promote growth of the membership. Ms. Kristin Macey (CA) asked how remote proctoring would work. Mr. Jerry Buendel (WA, Retired) indicated there are several providers and tiers of service and they are all being explored. Ms. Angela Godwin (Ventura Co., CA) indicated remote proctoring is a real need.

During the committee work session on January 14, 2021 the members reviewed the post exam surveys provided by NCWM. Certification Program Coordinator, Mr. Jerry Buendel (WA, Retired), compiled the results and presented the information to the Committee. The Committee observed that too few examinees were reviewing the learning objectives in the respective exam module prior to taking the exam. The Committee recommended a review the NCWM website to determine if examinees were clearly instructed to review the modules and if the modules were easily accessible. Two survey respondents indicated that it would be beneficial to have a two-step process to indicate that they had completed the section and that their submissions were final. Mr. Paul Floyd (LA) commented that Louisiana was requiring more inspectors to take exams. Mr. Floyd noted that the inspectors had a better grasp of the principles of operation and device exam requirements and as a result were doing more thorough inspections and were more confident in their findings and determinations.

The members of the Professional Development Committee also discussed the expiration dates of individual certifications during the work session. The Committee recommends the Board of Directors take action to extend the dates of all certifications expiring between March 2020 and August 2021 to September 2021. The Committee recognized the difficulties of taking the exams because of restrictions caused by the COVID-19 pandemic as well as the barriers associated with proctoring. The Committee noted that some jurisdictions or service companies may be using the exams to justify promotions or require an employee maintain current certification(s) in order to maintain their current job classification and salary. Mr. Buendel stated that the tests are reviewed annually to determine if any changes made to the Handbooks would require changes to the exam questions. Mr. Buendel went on to say that in the past three years he has made only two changes to current exam questions. The Committee also discussed the precedent that would be set by extending the expiration and concluded that the current extraordinary circumstances warrant an extension.

Regional Association Comments:

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

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

SWMA 2020 Annual Meeting: Chairman Mr. Paul Floyd (LA) commented that efforts would be made to update the information in this item for the NCWM Annual Meeting. Ms. Tina Butcher (NIST OWM) commented that the WWMA meeting discussed issues evolving around proctoring exams and additional resources from outside agencies

that may need to be acquired. At the WWMA, several jurisdictions shared best practices and approaches for securing proctors. Ms. Butcher also noted the NCWM PDC would be interested in hearing the experiences of and input from SWMA members on this issue. Mr. Paul Floyd (LA) commented that Louisiana has added another testing center, a smaller college in central Louisiana, for both basic and professional exams. Mr. Kenneth Ramsburg (MD) commented that they found proctoring was an issue since their Department of Agriculture in Maryland is relatively small and they were looking for outside sources to assist in administering the exams. Mr. Ramsburg added that the PDC and NCWM missed an opportunity for more exams to be taken by not offering them in an easily accessible online format.

NEWMA 2020 Interim Meeting: During its open hearings, the Committee heard comments related to the implementation of proctoring for the NCWM Professional Certification Program Exams. Mr. Don Onwiler (NCWM) commented that jurisdictions are using various approaches to implement proctoring and shared an example of one state that is making use of universities and learning centers for this purpose, which Mr. Onwiler is happy to authorize. Mr. Onwiler noted there may be a cost for some of these proctoring arrangements and suggested that jurisdictions might consider exploring the possible use of AMC funds for training toward these costs. Ms. Tina Butcher (NIST OWM) noted that during discussions at the recent Western and Southern Weights and Measures Association Meetings, jurisdictions shared different approaches they have used for proctoring. Ms. Butcher suggested that perhaps this kind of shared information of best practices might be beneficial for jurisdictions seeking options to implement this. Mr. Ross Andersen (NY, Retired) commented that there is a wealth of information and guidance on the NCWM website to assist jurisdictions in the process of securing proctors for these examinations. Mr. Jimmy Cassidy (MA) acknowledged the difficulty in coordinating proctoring. Particularly with the restrictions of the COVID-19 pandemic, certification and testing of inspectors seems to be at a standstill right now. Mr. Cassidy encouraged the Committee to pursue the idea of exploring the use of AMC funding to help jurisdictions certify its inspectors. PDC Chair, Marc Paquette (VT) observed there is a need to ensure the integrity of the examination process. Regarding virtual training, Mr. Paquette noted that Ms. Butcher will share some of NIST's work in this area as part of the Committee's next item.

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

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

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

NEWMA Report
<p>Regional recommendation to NCWM on item status:</p> <p> <input type="checkbox"/> Recommend as a Voting Item on the NCWM agenda <input checked="" type="checkbox"/> Recommend as an Information Item on the NCWM agenda <input type="checkbox"/> Recommend as an Assigned Item on the NCWM agenda <i>(To be developed by an NCWM Task Group or Subcommittee)</i> <input type="checkbox"/> Recommend as a Developing Item on the NCWM agenda <i>(To be developed by source of the proposal)</i> <input type="checkbox"/> Recommend Withdrawal of the Item from the NCWM agenda <i>(In the case of new proposals, do not forward this item to NCWM)</i> <input type="checkbox"/> No recommendation from the region to NCWM <i>(If this is a new proposal, it will not be forwarded to the national committee by this region)</i> </p>
<p>Comments and justification for the regional recommendation to NCWM: <i>(This will appear in NCWM reports)</i></p> <p>NEWMA PDC Chairman, Marc Paquette (Vermont) introduced this item, noting he has worked on this issue with NCWM's current Certification Coordinator, Jerry Buendel (NCWM), for a number of years, both during his time as an NCWM PDC member and as a state director. Chairman Paquette provided an overview of this item, pointing out the Professional Certification Program now includes exams in nine specific technical areas and two basic exams. It is exciting to see the program continue to expand to new topic areas; in July 2020, two new topics, high precision scales and LPG & NH₃ liquid-measuring devices were launched.</p> <p>Chairman Paquette observed there has been a drop in the number of certifications and exams over the past two years. There seems to be a correlation between the observed decline and the implementation of the requirement for proctoring of exams, and this trend was clearly exacerbated by the restrictions of the pandemic when in-person proctoring was not possible. Chairman Paquette reviewed statistics in the NCWM PDC 2021 Interim Report (and the NEWMA 2021 PDC Agenda) which suggest some jurisdictions increased participation in the exam process just before the implementation of the proctoring requirement, and this may have further contributed to the sharp decline in total numbers.</p> <p>In reviewing statistics for the weights and measures programs in the Northeastern region, Chairman Paquette noted Maine has established a proctor; he asked Maine's director, Brad Bachelder (Maine) to share his experience in this regard. Mr. Bachelder reported he first worked with NCWM Executive Director Don Onwiler to clarify the proctoring requirements. After clarifying the requirements, Mr. Bachelder made arrangements to use a food safety inspector in another part of their agency as proctor for exams. The food safety inspector has an office in the same building as state weights and measures but is not otherwise connected to the weights and measures program (and is, therefore, impartial). This individual volunteered her time as a courtesy to the weights and measures program. Currently that is the only recognized proctor in the state. While the pandemic has prevented Maine from using this proctor to date, now that restrictions are beginning to lift, they plan to begin proctored testing in the coming months. Mr. Bachelder also commented that the state of Maine requires all local sealers were required to pass exams for scales or RMFD. They found that 1 of 27 local sealers was able to pass exam. Inspectors are encouraged to take exams; however, many have had trouble passing exams.</p> <p>Chairman Paquette updated members on the work being done with in the NCWM's Professional Certification Program to pursue accreditation. He observed from his experience in working the laboratory metrology training, pursuing accreditation is a significant investment of resources, but there are benefits to doing so.</p> <p>The Committee received no other comments on this item.</p>

EDU-2 I Training

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

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

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

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

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

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

Ms. Butcher encouraged those interested in a training event to review the details for the event at the above website for information such as the availability of the class, intended audience, and any prerequisites. Given the Committee's report includes information for Committee activities in both 2020 and 2021, the "Summary of NIST OWM Training Conducted in 2019" is included in this report. To avoid confusion between the 2019 Summary and the "Summary of NIST OWM Training Summary Conducted in 2020" included later in this report, the summary is included as Appendix A to this report.

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

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

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

incorporated into the summary report for the 2020 calendar year provided by Ms. Butcher during the 2021 NCWM Interim Meeting.

NCWM 2020 Annual Meeting: The NCWM opened an annual meeting in July 2020 but immediately adjourned that meeting due to lack of a quorum brought about by COVID-19 pandemic restrictions. The 2020 Annual meeting was continued virtually in January 2021. Due to time constraints, the NCWM presented only voting items to the membership during that meeting. Since the PDC's agenda did not include any voting items its agenda was not presented during the NCWM 2020 Annual meeting.

NCWM 2021 Interim Meeting: The 2021 Interim Meeting was held virtually and immediately following the conclusion of the NCWM 2020 virtual meeting.

Ms. Cheryl Ayer (NH) asked if NIST OWM was continuing work on providing an on-demand video for small capacity scale field inspection. Dr. Doug Olson and Ms. Tina Butcher (NIST OWM) both indicated the plan was to continue that project. Multiple comments from the membership were heard thanking NIST OWM for the training provided. The comments indicated this training was invaluable during the COVID-19 pandemic.

Ms. Butcher provided the following "Summary of NIST OWM Training Conducted in 2020" along with information regarding other training and professional development resources OWM has provided for weights and measures jurisdictions and service companies in the past year, including projects to assist those whose activities were restricted due to the COVID-19 pandemic.

Summary of NIST OWM Training Conducted in 2020			
Area/Course Name	Start Date	Location	No. of Students
Laboratory Metrology			
Balance & Scale Calibration Uncertainties	01/27/20	Gaithersburg, MD	8
Fundamentals of Metrology	02/03/20	Gaithersburg, MD	8
	02/10/20	Gaithersburg, MD	8
Fundamentals of Metrology & LAP Problems Preparation	09/16/20	Web-based	8
Mass Metrology Seminar	03/02/20	Gaithersburg, MD	8
Regional Measurement Assurance Programs			
MidMAP	10/06/20	Web-based	24
NEMAP	04/20/20	Web-based	16
SEMAP	04/20/20	Web-based	33
SWAP	05/04/20	Web-based	24
WRAP	05/04/20	Web-based	27
Webinars			
Basic Uncertainty Concepts	03/05/20	Web-based	3
Calibration Certificate Evaluation	02/25/20	Web-based	12
Conducting an Effective Management Review	02/13/20	Web-based	12
Info Hour – Mentoring and On-the-Job Training	08/04/20	Web-based	58
Info Hour – Quality Management System & SAP Reviews	10/13/20	Web-based	58
Internal Auditing Best Practices	02/27/20	Web-based	14
Software Verification & Validation	02/20/20	Web-based	6
State Laboratory Annual Submission Process	09/10/20	Web-based	95
Laws and Metric Program			
Packaging & Price Verification			
Handbook 130 – Examination Procedure for Price Verification <i>13 Sessions:</i> 03/25/20; 04/08/20; 04/13/20; 04/14/20; 04/16/20; 04/20/20; 04/21/20; 05/19/20; 06/16/20; 07/22/20; 09/22/20; 10/14/20; 12/01/20	13 sessions May to December 2020	Web-based	Total 599

Handbook 130 – Overview of the Uniform Packaging and Labeling Regulation 11 Sessions: 03/26/20; 04/09/20; 04/15/20; 04/17/20; 04/22/20; 04/24/20; 05/21/20; 06/17/20; 07/23/20; 10/14/20; 12/1/20	11 sessions March to December 2020	Web-based	Total 562
Handbook 133 – Checking the Net Contents of Packaged Goods 8 Sessions: 04/23/20; 04/27/20; 04/29/20; 04/30/20; 05/20/20; 06/18/20; 08/05/20; 10/15/20	8 sessions April to October 2020	Web-based	Total 420
Handbook 133 – How to Test Animal Bedding 6 Sessions: 09/21/20; 09/30/20; 10/8/20; 10/21/20; 11/18/20; 12/09/20	6 sessions September to December 2020	Web-based	Total 179
Handbook 133 – Overview of Handbook 133	12/03/20	Web-based	74
Weights and Measures Inspections – Evidence, Search and Seizure, and Due Process 6 Sessions: 09/22/20; 10/01/20; 10/08/20; 10/20/20; 11/17/20; 12/08/20	6 sessions September to December 2020	Web-based	Total 613
Metric Education			
Info. Session – Metric Education Resources	09/12/20	Web-based	9
	09/30/20	Web-based	6
Info. Session – Metric Estimation	09/16/20	Web-based	4
	09/26/20	Web-based	6
Measurement System Basics – SI and US Customary Units for Regulatory Officials	08/12/20	Web-based	65
	10/21/20	Web-based	68
Legal Metrology Devices			
No training seminars were offered in 2020.	--	--	--

1 A summary of activities in each OWM Program area follows.

2 **Laboratory Metrology Program**

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

4 **General.** The Laboratory Metrology Program conducted several in-person classes prior to the COVID-19 pandemic
5 restrictions imposed in March 2020. This program also developed a web-based Fundamentals of Metrology and LAP
6 Problems Preparation Course. These courses will be used to provide formalized training to new Metrology staff until
7 in-person training resumes.

8 OWM is also pleased to announce that Dr. Micheal Hicks was appointed as Program Leader for the NIST OWM
9 Laboratory Metrology Program in Fall 2020.

10 **Regional Metrology Association Training.** All regional metrology association training was converted to a virtual
11 format and the training was conducted online. Special topics included “Roundtable Discussions” and “Proficiency
12 Testing Reporting and Planning.”

13 **Upcoming Lab Program Training.** The Laboratory Program is continuing to schedule online training as outlined in
14 the OWM Calendar of Events. The Program is scheduling some on-site training for June 2021; however, the plans to
15 conduct this training on-site is contingent upon the re-opening of the NIST campus. As the date of the training
16 approaches, there may be a need to shift the training to a virtual format. Consequently, registered students are
17 cautioned *NOT* to make travel arrangements pending written confirmation. Note that the decision to propose this
18 particular training in an in-person format so far in advance in light of the uncertainty of conditions is based on the
19 States’ laboratory metrologists’ dependency on training required for designated signatories for calibration services
20 and OWM’s long lead time for securing contract trainers.

Laws and Metric Program

General. The Laws and Metric Program cancelled all previously scheduled in-person courses as of April 2020 due to the COVID-19 pandemic. As of June 2020, OWM opened its webinars to industry at no charge. All “in-person” field inspection classes are postponed until further notice. OWM is not currently scheduling any in-person field inspection classes for the 2021 calendar year.

Webinar Offerings. Since April 2020, a total of 2,352 students have participated in Laws and Metric Program webinars. This includes training for 2194 students in the area of Laws and Regulations and training for 158 students in other Laws and Metric Program areas.

In April 2020, the Laws and Metric Program’s Mr. David Sefcik began offering three previously developed webinars and continued offering these at periodic intervals through December 2020.

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

In September 2020, the Laws and Metric Program began offering three new webinars developed by Mr. Ken Butcher and presented by Mr. David Sefcik. These were offered at periodic intervals through December 2020.

- **Handbook 133 – How to Test Animal Bedding**
 - Covers the different types of animal bedding, method of sale, test equipment, audit and test procedure, and documentation and evaluation of test results.
- **Handbook 133 – Overview of Handbook 133**
 - Covers the different types of mulch and soil and how they are sold (method of sale), the labeling requirements, test equipment, sampling (and alternative sampling), test procedure, and evaluation of test results.
- **Weights and Measures Inspections – Evidence, Search and Seizure, and Due Process**
 - Provides an overview on how the U.S. Constitution, the Bill of Rights, Laws, and Court decisions control how weights and measures inspections must be conducted. You will learn about the powers and duties of the Director and the special police powers of an official, as outlined in Handbook 130, Uniform Weights and Measures Law.
 - Topics include a checklist for “opening” and “closing” an inspection; consent; search and seizures under the 4th Amendment of the U.S. Constitution; defining evidence and provide suggestions on collecting, protecting and using it to support enforcement actions evidence; enforcement actions and recommended compliance procedures; and model guidelines for the administrative review process.

Legal Metrology Devices Program

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

- High Precision Scales (CWMA)
- Vehicle Scales (VA)
- Liquefied Petroleum Gas Liquid-Measuring Devices (SD)
- Retail Motor-Fuel Dispensers (LA)
- Vehicle-Tank Meters (CA)
- Vehicle-Tank Meters (AL)

All “in-person” field inspection classes are postponed until further notice. OWM is not currently scheduling any in-person field inspection classes for the 2021 calendar year.

While the Devices Program did not have materials ready to present in a virtual format, the Devices Program staff

worked to develop other tools and information that could assist weights and measures officials and service personnel working from home on their personal professional development during the restrictions of the pandemic. The Devices Program is exploring the development of webinars in the device inspection area.

Study Guides. Mr. John Barton, Ms. Tina Butcher, and Ms. Diane Lee of the Devices Program staff along with Ms. Lisa Warfield of the Laws and Metric Program staff developed a series of seven “study guides” to assist field inspectors and service personnel working from home or otherwise restricted from routine activities during the COVID-19 pandemic. These study guides are designed for use by weights and measures officials and service personnel to enhance and strengthen their knowledge of specific areas of legal metrology inspection and testing and are intended for use even after the restrictions of the pandemic are lifted.

The study guides are not intended to be a comprehensive summary of all training and development opportunities recommended for inspectors working in a specific topic area. Rather, they are intended to help individuals in their professional development by targeting the use of information and resources available on the NIST OWM website. Study guides are particularly ideal for use by individuals who are working remotely and are striving to enhance and strengthen their technical knowledge.

Included in each study guide are the following:

- An overview of resources available on the NIST OWM website, including self-study course material; videos; and newsletter articles and guidance documents on legal metrology issues.
- Suggestions for how each of these resources might be used for either independent, individual study or by groups of inspectors/service personnel led by an instructor or supervisor.
- Information on other training opportunities, including both on-line training and in-person instructor-led training and other resources for professional development.
- These study guides are intended for use in conjunction with other resources on the NIST OWM website, including Handbooks 44, 130, and 133.

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

- Grain Moisture Meters and NIR Grain Analyzers
- Measuring – Retail Motor-Fuel Dispensers
- Measuring – Large Meters
- Measuring – Liquefied Petroleum Gas Liquid-Measuring Devices
- Packaging and Labeling Inspections
- Weighing – Small Scales
- Weighing – Large Scales

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

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

Technical Article and Knowledge Check for Self-Study. Mr. Rick Harshman of the Devices Program developed a Technical Article titled “Making Sense of “Min” on Class I and Class II Scales.” This explains the concept of “Min” and provides guidance on its use and application in transactions encountered by jurisdictions which are reportedly regulating a growing number of Class I and Class II scales.

Mr. Rick Harshman and Ms. Tina Butcher also developed a new feature called a “Knowledge Check” to accompany this article. The Knowledge Check serves as a tool for jurisdictions who might want to quiz their employees on their knowledge retention after assigning them the task of reading the article. Depending on feedback, the Devices Program may include Knowledge Checks as a regular accompaniment to its technical articles.

General – OWM Training

Ms. Butcher reported all NIST OWM “in-person” field inspection classes are postponed until further notice. OWM

1 is not currently scheduling any in-person field inspection classes for the 2021 calendar year. This does not include
2 the training referenced under the Laboratory Metrology Program's summary that is tentatively scheduled for June
3 2020 if conditions permit.

4 OWM is not currently making specific commitments for field inspection training pending changes in restrictions
5 related to the COVID-19 pandemic that would help ensure the safety of its students and staff involved in such training
6 and traveling to attend these events. OWM will continue to assess these conditions as the situation unfolds.

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

11 In the meantime, OWM will continue to offer virtual training and plans to expand its offerings. Ms. Butcher
12 encouraged those interested in upcoming training to consult OWM's Calendar of Events for the most current
13 information:

14 <https://www.nist.gov/news-events/upcoming-events/org/6436>

15 Ms. Butcher shared that, in the latter months of 2020, a team of training developers and facilitators within OWM
16 begun working to consider how OWM might restructure its training program to include more virtual offerings. In
17 addition to considering which existing (or yet-to-be-developed) courses might lend themselves to training in a virtual
18 format, this team has discussed the importance of incorporating some equivalent of the "hands-on" element that is a
19 cornerstone of field inspection courses and the distinction between training and technical presentations. OWM is
20 exploring the idea that, should resources permit it, it may be possible to record some webinar offerings at some point
21 in the future; these could possibly be made available "on demand" and accompanied by periodic question and answer
22 sessions with a live instructor. OWM is continuing to explore the use of technology and available features to adapt
23 its courses to a virtual format and is also considering whether a "hybrid" approach might be used in which a portion
24 of an existing course could be presented virtually and followed by smaller, in-person classes to incorporate a hands-
25 on demonstration and student assessment.

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

31 As OWM considers how to best expand its virtual training offerings, OWM staff have been experimenting with
32 available technology and tools to best incorporate elements of "hands on" activities that are so important to its field
33 inspection training courses. OWM is also considering the development of "hybrid" courses in which virtual sessions
34 are coupled with "hands on" sessions using virtual technology and/or local onsite trainers to help facilitate these
35 sessions. Such hybrid courses would be intended for use both during the COVID-19 pandemic and after the associated
36 restrictions are lifted.

37 Ms. Butcher reported that NIST OWM is outfitting a space at NIST OWM specifically suited to conduct virtual
38 training events and web-based meetings. OWM trainers are continuing to participate in a variety of training courses
39 as part of their own professional development, including education in virtual training design, development, and
40 delivery as well as instructional design.

41 Ms. Butcher once again thanked the jurisdictions who have hosted the many "in-person" NIST training seminars in
42 the past, recognizing the effort required to host these events and coordinate the logistics. Ms. Butcher also recognized
43 co-instructors who have assisted in presenting these events. NIST OWM looks forward to continued work with the
44 weights and measures community to develop and implement training to assist weights and measures officials and
45 service personnel in their continued professional development.

1 Regional Association Comments:

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

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

18 The Committee heard comments from Ms. Cadence Matijevich (NV) who commented that Nevada appreciates all the
19 work that NIST did to provide virtual training during the pandemic. The options provided allowed field inspectors
20 who were not able to do normal inspection work to spend time on professional development, making lemonade out of
21 lemons. She expressed an appreciation for all the training and resources provided by NIST OWM. Ms. Michelle
22 Wilson (AZ) echoed Cadence's comments. Ms. Wilson asked if NIST has considered recording training events and
23 posting the videos as "on demand" training, noting this would be particularly helpful for new inspectors. Ms. Wilson
24 also asked about the use of field trainers to supplement the "hands on" portion of classes, with the idea that the field
25 trainers might be able to conduct demonstrations to accompany the online training. Ms. Kathy de Contreras (CA)
26 encouraged NIST to continue to offer these types of classes and the use of webinars and train-the-trainers.

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

32 SWMA 2020 Annual Meeting: Ms. Tina Butcher (NIST OWM) gave a presentation on item EDU- 2 which included
33 an overview of web-based training and other developmental resources offered by NIST OWM between January and
34 July 2020. The presentation gave statistics on participants the program reached. Mr. Paul Floyd (LA) thanked Mrs.
35 Butcher and NIST OWM for developing and offering the webinars. Mr. Phillip Wright (TX) followed up with
36 comments thanking Ms. Butcher and NIST OWM and that he was encouraged to see the direction of the training
37 program. Mr. Kenneth Ramsburg (MD) again thanked NIST OWM for being supportive and producing a robust
38 training program and said he and his staff appreciated the trainings and attended trainings for price verification, and
39 Laboratory Metrology. Mr. Ramsburg also commented that webinars for Service Companies and Technicians would
40 be beneficial beginning with the retail motor fuel dispenser companies. Mr. Ramsburg noted that, due to COVID-
41 19 pandemic restrictions, service companies are not attending their jurisdiction's normal service person training; with
42 the relatively high turnover in the service industry, this has created a gap in service personnel's knowledge of legal
43 metrology requirements. Mr. Ed Coleman (TN) thanked NIST OWM for the trainings and agreed with Mr.
44 Ramsburg that a webinar program for Service Companies and Technicians would be a great addition.

45 NEWMA 2020 Interim Meeting: Ms. Tina Butcher (NIST OWM) provided a presentation on NIST OWM training
46 activities during the period of January to July. Ms. Butcher noted that this presentation was provided during the
47 NCWM PDC's virtual meeting in July 2020. Ms. Butcher highlighted OWM's efforts to support weights and measures
48 jurisdictions by providing training and other professional development materials in a virtual format during the time
49 that restrictions of the COVID-19 pandemic prevented field inspectors and service personnel from working in field
50 installations. Ms. Butcher noted the shift to include more virtual training options has a profound impact on OWM's

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

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

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

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

Ms. Elizabeth Lambert (MO) noted Missouri Lab Manager Mr. Kevin Upshulte and several of their inspectors have

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

14 Ms. Butcher reported that at present NIST OWM is restricted from traveling; however, once travel is once again
 15 permitted NIST OWM will consider various options for delivering training based upon any pandemic-related
 16 restrictions that remain in place. One of these scenarios might include something like Mr. Hankins suggested or even
 17 modified classes in which a much smaller group of students participate in a classroom setting coupled with some
 18 online training in advance. This will depend on the conditions and restrictions. Ms. Butcher also reported that a
 19 small group of OWM staff have been developing a strategy for OWM's online training, not just during the COVID-
 20 19 pandemic restrictions but afterward since this mechanism provides an opportunity to reach far more customers
 21 than in-person alone. Ms. Butcher acknowledged Mr. Hankins point about the challenges of discussions during
 22 a webinar and noted OWM has been considering offering some "Information Hour" sessions (patterned after those
 23 used in the Laboratory Metrology Program) during which a particular technical topic would be discussed in a more
 24 informal format allowing participants to ask questions and discuss technical issues. Ms. Butcher also shared that
 25 another option OWM has used in the past prior to COVID-19 pandemic restrictions is that of conducting a webinar
 26 to a group of people located in the same (or several) rooms. A laptop and projector are set up and logged into a
 27 webinar to be presented by OWM and a microphone is used to provide sound to the group of people in the room.
 28 The webinar is conducted, and participants can ask questions and talk amongst themselves much like a normal, in-
 29 person classroom.

30 Mr. John Albert (MO) made a similar comment via the Zoom meeting chat, sharing they have required all their
 31 inspectors to take this training. Mr. Ivan Hankins noted Iowa has done the same. Mr. Jeff Fantozzi (Erie Co., OH)
 32 commented that following the death of Ms. Fran Elson-Houston, past director of Ohio Weights and Measures, there
 33 have been some challenges getting training events up and running again, and they very much appreciate the training
 34 NIST has been able to provide.
 35

NEWMA Report
Regional recommendation to NCWM on item status: <ul style="list-style-type: none"> <input type="checkbox"/> Recommend as a Voting Item on the NCWM agenda <input checked="" type="checkbox"/> Recommend as an Information Item on the NCWM agenda <input type="checkbox"/> Recommend as an Assigned Item on the NCWM agenda (To be developed by an NCWM Task Group or Subcommittee) <input type="checkbox"/> Recommend as a Developing Item on the NCWM agenda (To be developed by source of the proposal) <input type="checkbox"/> Recommend Withdrawal of the Item from the NCWM agenda (In the case of new proposals, do not forward this item to NCWM) <input type="checkbox"/> No recommendation from the region to NCWM (If this is a new proposal, it will not be forwarded to the national committee by this region)
Comments and justification for the regional recommendation to NCWM: (This will appear in NCWM reports)
Tina Butcher (NIST OWM) shared that she presented a summary of training conducted by NIST OWM in calendar year 2020 at the NCWM PDC Committee's January 2021 open hearings. Those statistics and other details are

found in the NCWM PDC's Interim Report. Additionally, since the NCWM PDC did not meet during the NCWM 2020 Annual Meeting, a report of 2019 activities is included as an appendix to their 2021 Interim Report.

Mrs. Butcher reported NIST is presently approving only "mission critical" travel. Thus, OWM staff are unable to present in-person training and are not able to commit to any in-person events through at least 2021. OWM will continue to reassess this situation and hopes to have a better idea in Fall 2021 of what 2022 will look like. However, until OWM has a better idea of when the restrictions will begin to lift, OWM is not scheduling any in-person events in 2022.

Mrs. Butcher observed OWM's restriction from traveling is not the only limitation that needs to be considered in moving back to an in-person training format. OWM's present in-person model for field inspection training consists of classes of 25 people seated in very close proximity to one another. Restrictions and other logistics at a host site will also factor into OWM's ability to return to a fully in-person venue. It may be that training will slowly phase back into the previous model or a variation of that model.

Mrs. Butcher observed the experience of the pandemic revealed significant benefits offered by virtual training options, most noticeably the number of students that can be reached with the training and the number of topics. For example, under OWM's pre-pandemic in-person model, about 10 field inspection classes with 25 students each were conducted each year. Not only does this represent only a small portion of the inspection and service personnel workforce, it covers only a limited number of the many topics in which a field inspector may need training.

Compared to the limited number of students reached with in-person training, in 2020 in OWM's Laws and Metric Program alone OWM reached over 2600 students! And by providing training more frequently, many students who would not otherwise be able to attend an in-person event due to schedule conflicts or travel restrictions can now participate. Thus, OWM does not expect to abandon the clear benefits provided with a virtual training option and expects to maintain a significant virtual training presence moving into the future.

OWM does recognize the significant value of the "hands-on" component of field inspection training and is considering how to bring that into the virtual environment until in-person training can resume. OWM is considering whether a "hybrid" model of training might be a good solution. A hybrid model might consist of virtually presenting those portions of a class that lend themselves to a virtual format combined with shorter, in-person training events to address the hands-on component of training. This might also include the integration of technology to include virtually-linked options to demonstrations of hands-on testing. There is also the possibility of using NIST's external trainers and local experts to assist with in-person "hands-on" events. These options bear exploring since they provide significant advantages over the amount and breadth of training provided through in-person options only. Mrs. Butcher also noted that there is a significant amount of expertise in the weights and measures community outside of NIST for providing training, and jurisdictions should continue to take advantage of that training.

In the meantime, Mrs. Butcher encouraged NEWMA members to consult the "Calendar of Events" on the NIST OWM website for upcoming virtual training opportunities. She also noted that OWM is excited to announce that Ken Butcher has developed a new series of webinars on LPG Cylinder Refilling and the first of that series will be presented by David Sefcik in June. The response to this webinar has already been very positive!

Cheryl Ayer (New Hampshire) asked if webinars were recorded so students could go back and revisit content from training webinars. Mrs. Butcher also noted Ms. Ayer has previously referenced the value of posting videos to both inspectors and service personnel who may need to obtain training. Mrs. Butcher stated that currently training webinars are not recorded; however, she feels that would be of great benefit for regulators and industry service members taking training classes, particularly in addressing ongoing training needs for new employees and existing employees who are in need of refresher training or training in new areas. OWM would like to reach a point where we can provide on-demand videos as an ultimate goal at some point.

Ross Anderson (New York State, retired) is in favor of posting training seminars and webinars on a platform such as YouTube since this has great potential to assist inspectors and others with training as well as test procedures.

Jimmy Cassidy (Massachusetts) spoke in favor of NIST provided virtual web-based training. Mrs. Butcher thanked

Mr. Cassidy and also expressed appreciation to the weights and measures community for their patience during the pandemic restrictions and for continuing to work with OWM to explore new options for delivering training.

Mrs. Butcher shared that NIST OWM Chief, Doug Olson, has allocated resources working with our operating unit, the Physical Measurement Laboratory (PML), to outfit two rooms for hosting and conducting webinars. Thus, webinars will continue to have a prominent presence in our training moving forward. We have learned a tremendous amount about making use of technology for training and about the format of our training over the course of the pandemic and we don't want to lose what we have learned. Dr. Olson also observed that PML is extremely supportive of these training efforts and has demonstrated that commitment in allocating significant funds at an estimated \$100-200K for the outfitting of these training studios. Dr. Olson commented he expects that this allocation of space will lead to not only a space to conduct webinars, but will contribute to other enhancements in our virtual training.

EDU-3 I Instructor Improvement

NIST OWM has provided legal metrology training for weights and measures jurisdictions and industry for many years but does not have the resources to respond to the numerous training requests it receives. OWM has long recognized that there are many individuals with extensive legal metrology experience who have the skills needed to provide this type of training. OWM hopes to draw from this pool to develop trainers who can present schools with NIST, thus leveraging NIST resources; providing more timely classes; and providing a way to more broadly share the valuable expertise these individuals possess. In the past ten years, NIST OWM has taken on more field inspection classes than it would otherwise be able to do because of the co-instructors drawn from its current list of trainers.

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

- NIST held multiple trainer workshops and webinars designed to assist individuals in the community with technical expertise to enhance and strengthen their abilities as “trainers.”
- NIST identified tools and resources to assist trainers in their individual professional development and in conducting their own self-assessments of their knowledge, skills, and abilities as trainers.
- NIST provided multiple grants for a combined total of \$212,000 to the NCWM 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.
- NIST has made a concerted effort to involve external co-instructors in numerous NIST training events and continues to use these co-instructors to the extent possible. Through an application process, in collaboration with weights and measures directors and nominated training candidates, NIST has identified a group of people who are now working with NIST to develop the knowledge, skills, and abilities to work with NIST staff in presenting technical training schools. Several 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 those who have attended a NIST “Train the Trainer” (TTT) program or associated events has been posted on the NCWM website. Many people on this list have attended the TTT events and workshops but have not served as co-instructors for NIST classes and, in some cases, have not attended NIST technical training schools in the topic areas in which they have declared an interest in serving as trainers and for which they are listed on the website. Conversely, there are people on this list who have attended the workshops and NIST technical training seminars and have also served as co-instructors in NIST training seminars. Thus, there is a variation in the experience levels of individuals on this list, particularly with presenting NIST seminars.

OWM has not authorized anyone (external to NIST) to independently present “NIST” classes. 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. Nor does NIST have the resources to develop and sustain the development of all the individuals that have been invited to participate in the NIST trainer program activities and events held in the past. However, even if a candidate has not worked directly with NIST staff in presenting NIST seminars and is not designated to participate as an instructor in a NIST seminar, they and their jurisdictions can benefit from the experience and the candidate can still provide valuable training in their jurisdiction and region. Additionally, 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 to meet these requirements.

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

OWM appreciates the strong support of the NCWM, the PDC, and the volunteer trainers and their administrators in continuing to develop the TTT 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 has reiterated multiple times in the past that the responsibility for the training employee 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 weights and measures inspectors in the country. The state and municipal jurisdictions have ultimate responsibility for training and qualifying their personnel. To fulfill this responsibility, jurisdictions should be making individual plans to maintain or bolster their training efforts. NIST OWM should be viewed as one vital resource to support that effort. The Professional Development Committee is another resource. The Committee has created and posted on its website, the “Body of Knowledge” to establish uniform learning objectives for weights and measures professionals. In addition, the Committee has posted a Model Field Training Program document on its website. This program outlines methods to evaluate and document training and offers guidance on training new inspectors and taking steps to ensure their ongoing development.

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

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

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

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

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

NCWM July 2020 Virtual Technical Sessions: During its virtual technical discussions in July 2020, the Committee heard an update from Ms. Tina Butcher (NIST OWM) regarding NIST’s TTT program. Ms. Butcher reported that, due to the restrictions of the COVID-19 pandemic which necessitated the postponement of in-person training venues

for OWM courses, OWM has not done any work in the area of instructor training. However, Ms. Butcher noted OWM remains committed to continuing to work with its corps of external trainers and very much appreciates the generosity of both the trainers who share their time and expertise as co-instructors as well as that of the administrators who allow these trainers to devote time to this work. Ms. Butcher observed she has personally found these trainers bring a wealth of knowledge and expertise to the classes and greatly enhance the courses. OWM also looks forward to exploring ways in which these trainers can contribute.

NCWM 2020 Annual Meeting: The NCWM opened an annual meeting in July 2020 but immediately adjourned that meeting due to lack of a quorum brought about by pandemic restrictions. The 2020 annual meeting was continued virtually in January 2021. Due to time constraints, the NCWM presented only voting items to the membership during that meeting. Since the PDC's agenda did not include any voting items its agenda was not presented during the NCWM 2020 Annual meeting.

NCWM 2021 Interim Meeting: The 2021 Interim Meeting was held virtually and immediately following the conclusion of the NCWM 2020 virtual meeting. Ms. Butcher indicated that, due to continued restrictions brought about by the COVID-19 pandemic there have been no changes in the status of NIST OWM's work in this area from what was reported during the Committee's July 2020 Virtual Technical Sessions.

The Committee received no comments during the open hearing on this item.

Regional Association Comments:

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

Ms. Michelle Wilson (AZ) suggested NIST OWM might consider expanding its concept of instructor training approach to engage those people who presently serve as co-instructors to provide instruction for the hands-on portions of the training. Ms. Wilson noted that some instructors have strengths in the area of classroom training and others may have stronger skills in demonstrating and presenting instruction on field demonstration. Ms. Wilson noted that some field inspectors have lots of expertise in field inspection procedures, but not as much skill or knowledge of classroom training of adults. Perhaps if NIST were to provide the classroom portions in an online format and couple that with the use of these field trainers to provide the hands-on portion, this would play to the field trainers' strengths. Ms. Butcher noted these are options that OWM has discussed and is open to and welcomes ideas. OWM recently collected a team of OWM instructors to begin planning how to best move forward with virtual training approaches, particularly considering the COVID-19 pandemic.

SWMA 2020 Annual Meeting: Ms. Tina Butcher (NIST OWM) noted that, given the restrictions of the COVID-19 pandemic, NIST OWM has postponed its previously scheduled in-person training classes. Thus, there are no new developments in the area of NIST's TTT program. Ms. Butcher noted OWM remains committed to continuing to work with its corps of external trainers and very much appreciates the generosity of both the trainers who share their time and expertise as co-instructors and to the administrators who allow these trainers to devote time to this work. These trainers bring a wealth of knowledge and expertise to the classes and greatly enhance the courses. OWM also looks forward to exploring ways in which these trainers can play a role in virtual course offerings as well. Mr. Phillip Wright (TX) commented on the benefits of the TTT program participation and that it also enhanced state training programs by the trainer participating on the state level as well as bringing back additional knowledge to share.

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

CWMA 2020 Interim Meeting: Ms. Tina Butcher (NIST OWM) reported that no work has been done in the area of

instructor improvement since the onset of the COVID-19 pandemic. Ms. Butcher expressed appreciation for the work done by those trainers in the program and noted that OWM looks forward to continuing to work with these trainers who have generously shared their expertise during NIST training events. OWM will also consider how these trainers might collaborate with NIST in delivering virtual training while pandemic restrictions prevent in-person training events.

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

NEWMA Report	
Regional recommendation to NCWM on item status:	
<input type="checkbox"/> Recommend as a Voting Item on the NCWM agenda <input checked="" type="checkbox"/> Recommend as an Information Item on the NCWM agenda <input type="checkbox"/> Recommend as an Assigned Item on the NCWM agenda <i>(To be developed by an NCWM Task Group or Subcommittee)</i> <input type="checkbox"/> Recommend as a Developing Item on the NCWM agenda <i>(To be developed by source of the proposal)</i> <input type="checkbox"/> Recommend Withdrawal of the Item from the NCWM agenda <i>(In the case of new proposals, do not forward this item to NCWM)</i> <input type="checkbox"/> No recommendation from the region to NCWM <i>(If this is a new proposal, it will not be forwarded to the national committee by this region)</i>	
Comments and justification for the regional recommendation to NCWM: <i>(This will appear in NCWM reports)</i>	
<p>Tina Butcher (NIST OWM) reported NIST OWM's instructor training model (in which external experts serve as co-instructors at NIST training events) revolves around an in-person model. Since NIST OWM's in-person training seminars have been cancelled since the onset of the COVID-19 pandemic in spring 2020, OWM has no updates on this item. However, she indicated OWM is fully committed to resuming work with these experts as restrictions begin to lift. She thanked those individual trainers who have worked with OWM in the past as well their administrators who allow these instructors to share their time and expertise with the weights and measures community. These instructors bring a significant amount of expertise to OWM training events and greatly enhance them. Mrs. Butcher noted there is a lot of expertise in the community and we need to continue to find ways to make that expertise available.</p>	

EDU-4 I Recommended Topics for Conference Training

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

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

- Planning and Coordinating a National Market Place Survey (Ms. Rachelle Miller, WI, 2017)
- The Life Cycle of Petroleum from Well to Retail (Mr. Prentiss Searles, API 2017)
- The United States Mint at Denver – Gold, Coins and Embezzlement (Mr. Thomas Fesing, 2016)
- Understanding Transportation Network Systems (Ms. Andrea Ambrose Lobato, Lyft and Mr. Bob O'Leary, Uber 2016)
- Regulatory Consideration for Legalized Marijuana (Ms. Julie Quinn, MN and Mr. Nick Brechun, CO 2016)
- Motor Oil Quality Violations (Mr. Tom Glenn, Petroleum Quality Institute of America, 2014)
- Making Sense of Electronic Receipts (Mr. Justin Hotard, Vice President and General Manager, NCR)

Corporation, 2014)

- LNG & CNG Motor Fuel – A Technical Briefing from Industry (Mr. Doug Horne, President CVEF, Mr. Zack Wester, Blu, Mr. Jeff Clarke, NGVA, 2014)
- Taximeter Technology Advancements (Mr. Matt Daus, International Association of Transportation Regulators, 2013)
- Advanced Vehicles and Fuel Quality (Mr. John M Cabaniss, Jr., Association of Global Automakers, 2013)
- Economic Justification and Demonstrating Value of Weights and Measures (Mr. Tim Chesser, Arkansas Bureau of Standards, 2012)
- Conducting Effective Marketplace Surveys and Investigations (Ms. Judy Cardin, Wisconsin Weights and Measures, 2012)
- Public Relations and Customer Service as Regulators (Mr. Doug Deiman, Alaska Division of Measurement Standards/ CVE, 2012)
- An Overview of Unit Pricing in the United States (Mr. David Sefcik, NIST OWM, 2011)
- Grocery Unit Pricing in Australia (Mr. Ian Jarratt, Queensland Consumers Association, 2011)
- Grocery Unit Pricing in Canada (Mr. Ian Jarratt, Queensland Consumers Association, 2011)
- The U.S. Hydrogen Measuring System: The Turning Point? (Ms. Kristin Macey, California Division of Measurement Standards, 2011)
- Corrosion in Ultra Low Sulfur Diesel Underground Storage Systems (Mr. Prentiss Searles and Ms. Lorri Gainawi, American Petroleum Institute, 2010)
- Risk-Based Inspection Schemes (Mr. Henry Oppermann, Weights and Measures Consulting, LLC, 2010)
- Diesel Exhaust Fluid (DEF) (Mr. Gordon Johnson, Gilbarco, Inc., and Mr. Randy Moses, Wayne, 2009)
- Fuel Volatility and Ethanol Blending (Mr. Jim McGetrick, BP Products, 2009)
- Investigative Techniques (Mr. Michael Cleary, Retired, 2009)

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

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

NCWM 2019 Annual Meeting:

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

NCWM 2020 Interim Meeting: Ms. Fran Elson-Houston (OH) suggested training on gravimetric testing of motor oils for either a conference technical training session or a regional training; Mr. Mark Lovisa (LA) suggested training on mass flow meters/master meters.

NCWM 2020 Annual Meeting: The NCWM opened an annual meeting in July 2020 but immediately adjourned that meeting due to lack of a quorum brought about by pandemic restrictions. The 2020 annual meeting was continued virtually in January 2021. Due to time constraints, the NCWM presented only voting items to the membership during that meeting. Since the PDC’s agenda did not include any voting items its agenda was not presented during the NCWM 2020 Annual meeting.

NCWM 2021 Interim Meeting: The 2021 Interim Meeting was held virtually and immediately following the conclusion of the NCWM 2020 virtual meeting.

Ms. Tina Butcher (NIST OWM) offered to develop a technical presentation related to the work their office is doing with master meters. Ms. Cheryl Ayer (NH) and Ms. Rachelle Miller (WI) expressed interest. Mr. Charles Stutesman (KS) suggested NIST training on the gravimetric proving process and suggested training on the use of error weights would be valuable.

Regional Association Comments:

WWMA 2020 Annual Meeting: No comments were received during open hearings regarding this item. The Committee encourages WWMA members to review the listed training topics and forward suggestions to National Professional Development Committee for future training needs.

SWMA 2020 Annual Meeting: SWMA Chairman Mr. Paul Floyd (LA) asked SWMA members to continue to think about possible topics for training and encouraged them to provide their input to the NCWM PDC. The SWMA PDC received no comments for this item.

NEWMA 2020 Interim Meeting: The Committee received no comments on this item during its open hearings. However, PDC Chair Mr. Marc Paquette (VT) reviewed some of the suggested training offerings and asked for input from participants.

CWMA 2020 Interim Meeting: The Committee received no comments on this item during its open hearings. Acting PDC Chairman, Ms. Elizabeth Lambert (MO) encouraged CWMA members to submit suggested topics for training to the NCWM PDC.

EDU-4
<p>Regional recommendation to NCWM on item status:</p> <p> <input type="checkbox"/> Recommend as a Voting Item on the NCWM agenda <input checked="" type="checkbox"/> Recommend as an Information Item on the NCWM agenda <input type="checkbox"/> Recommend as an Assigned Item on the NCWM agenda <i>(To be developed by an NCWM Task Group or Subcommittee)</i> <input type="checkbox"/> Recommend as a Developing Item on the NCWM agenda <i>(To be developed by source of the proposal)</i> <input type="checkbox"/> Recommend Withdrawal of the Item from the NCWM agenda <i>(In the case of new proposals, do not forward this item to NCWM)</i> <input type="checkbox"/> No recommendation from the region to NCWM <i>(If this is a new proposal, it will not be forwarded to the national committee by this region)</i> </p>
<p>Comments and justification for the regional recommendation to NCWM: <i>(This will appear in NCWM reports)</i></p> <p>Jimmy Cassidy (Massachusetts) suggested incorporating training into the NEWMA Meeting. Suggested an NTEP process training as subject matter. NEWMA PDC Chairman Paquette observed New York Weights and Measures does NTEP testing. He shared that he would find it very interesting to better understand what that entails and what test equipment and training might be needed and speculates that others may as well.</p> <p>No other comments were received on this item.</p>

PMT – PROGRAM MANAGEMENT

PMT-1 I Safety Awareness

One of the goals of the PDC is to educate jurisdictions on safety issues and to provide resources to help them implement effective safety and health management programs. The Committee intends to use the safety page at www.ncwm.com/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.

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

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

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

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

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

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

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

The following information was provided at the 2019 Interim Meeting:

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
<u>TOTAL</u>	21

- 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.

<p align="center">Injuries = Lagging Indicators All Reported Injuries 2016-2018</p>
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NEWMA PDC 2021 Annual Meeting Report

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

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

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

- 6 • Bending/Lifting/Twisting
- 7 • Vehicle Accidents
- 8 • Slips/Trips/Falls
- 9 • Chemical Exposure

- 10 NCWM members are encouraged to review a complete presentation on the 2018 safety survey on the NCWM website.

- 11 The Committee expresses appreciation to the members of the Safety Subcommittee for their willingness to volunteer
- 12 for this important work.

Safety Subcommittee Members		
Chair	Vacant	
Public Sector Member	Jason Flint	New Jersey
Public Sector Member	Elizabeth Koncki	Maryland
Public Sector Member	Vacant	(CWMA Representative)
Public Sector Member	Mike Sikula	New York
Private Sector Member	Tisha Arriaga	Marathon Petroleum, LLC
Private Sector Member	Bill Callaway	Crompton
Private Sector Member	Remy Cano	Northwest Tank and Environmental Services
Private Sector Member	Robert LaGasse	Mulch and Soil Council
Private Sector	John Lawn	Rinstrum, Inc.

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

Regional Safety Liaisons:

Central Weights and Measures Association (CWMA)

TBD

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. Remy Cano, Northwest Tank and Environmental Services

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

The Committee would like to thank the following individuals for their contributions since the 2019 Annual Meeting:

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

NCWM 2019 Annual Meeting: Mr. Steve Harrington (OR) suggested that we could publish 'best ergonomic practices' in daily weights and measures routines as these tasks undergo hazard analysis, and communicate these recommendations to avoid repetitive motion injury, etc. during daily tasks as they are developed.

NCWM 2020 Interim Meeting: The Committee received no comments.

NCWM 2020 Annual Meeting: The NCWM opened an annual meeting in July 2020, but immediately adjourned that meeting due to lack of a quorum brought about by COVID-19 pandemic restrictions. The 2020 Annual Meeting was continued virtually in January 2021. Due to time constraints, the NCWM presented only voting items to the membership during that meeting. Since the PDC's agenda did not include any voting items its agenda was not presented during the NCWM 2020 Annual meeting.

NCWM 2021 Interim Meeting: The 2021 Interim Meeting was held virtually and immediately following the conclusion of the NCWM 2020 virtual meeting.

Mr. David Aguayo (San Luis Obispo Co., CA), Chair of the PDC, reviewed this item in the absence of the Safety Subcommittee Chair, Ms. Lori Jacobson (SD). The Committee expressed appreciation to all the regional safety representatives for their continued contributions. The CWMA Regional Safety Liaison position is currently vacant. Individuals interested in serving in this capacity should contact the CWMA Chair or Board member.

The Committee expresses its appreciation to Ms. Brenda Sharkey (SD), the previous CWMA representative, for her

work.

No comments were heard during open hearings.

Regional Association Comments:

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

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

NEWMA 2020 Interim Meeting: PDC Chair Mr. Marc Paquette (VT) reviewed this item and expressed appreciation to Mr. Mike Sikula (NY Measures) for his work as NEWMA's Regional Safety Liaison to the NCWM and the articles Mike has contributed on NEWMA's behalf. Chairman Paquette also reported that Ms. Lori Jacobson (SD, Retired) has agreed to serve in the capacity as Safety Liaison. Mr. Paquette also shared that the NCWM has decided to establish an additional educational task group on the topic of "Skimmers" as part of the NCWM PDC structure, similar to that used for the topic of "Safety Awareness." This would allow the structure of the PDC to be used to encourage and maintain education in these and other technical areas.

CWMA 2020 Interim Meeting: Acting PDC Chairman, Ms. Elizabeth Lambert (MO) recognized Ms. Brenda Sharkey (SD) for her work as the CWMA's Safety Liaison to the NCWM. Ms. Lambert thanked Ms. Sharkey and recognized a recent safety-related article Ms. Sharkey contributed on CWMA's behalf to the NCWM Newsletter. Ms. Lambert also expressed thanks to Ms. Lori Jacobson (SD, Retired) who has agreed to serve in the capacity as Safety Liaison to the NCWM PDC.

NEWMA Report
<p>Regional recommendation to NCWM on item status:</p> <p> <input type="checkbox"/> Recommend as a Voting Item on the NCWM agenda <input checked="" type="checkbox"/> Recommend as an Information Item on the NCWM agenda <input type="checkbox"/> Recommend as an Assigned Item on the NCWM agenda <i>(To be developed by an NCWM Task Group or Subcommittee)</i> <input type="checkbox"/> Recommend as a Developing Item on the NCWM agenda <i>(To be developed by source of the proposal)</i> <input type="checkbox"/> Recommend Withdrawal of the Item from the NCWM agenda <i>(In the case of new proposals, do not forward this item to NCWM)</i> <input type="checkbox"/> No recommendation from the region to NCWM <i>(If this is a new proposal, it will not be forwarded to the national committee by this region)</i> </p>
<p>Comments and justification for the regional recommendation to NCWM: <i>(This will appear in NCWM reports)</i></p> <p>NEWMA PDC Chairman Paquette shared the position of the NCWM Safety Subcommittee Chair has been vacant since 2019. Subsequent NCWM Chairmen have been unable to fill this position. He encouraged attendees to consider volunteering for this position or encouraging others to volunteer for this position and observed that serving in this capacity would provide an excellent professional development opportunity.</p> <p>No additional comments were heard on this item.</p>

PMT-2 I Skimmer Education Task Group

Note: This is a new agenda item added to the report by the PDC after the Publication 15 printing deadline.

The Skimmer Education Task Group (SETG) held its first meeting during the 2021 Annual Meeting. The SETG is made up of industry members, regulatory officials, and interested parties for the purpose of continuing work identified by the Specifications and Tolerances (S&T) Committee's Credit Card Skimmer Task Group. Under the guidance of the Professional Development Committee (PDC), the task group will develop education and outreach strategies and gather or produce materials to educate regulatory officials, fuel retailers, industry members and consumers on payment card information theft via skimming devices. The SETG will provide information and organize education sessions to share recommendations for safety procedures and technologies to better protect consumer payment information and reduce the risk of skimmer installation at fuel dispensers. The SETG will continue in force until the SETG Chair and the PDC Chair agree the work has been completed. The task group may also be disbanded by vote of the NCWM Board of Directors. The task group will meet via electronic media, teleconferences, face-to-face meetings or other means available.

Co-Chair, Ms. Paige Anderson (NACS) provided a report of their meeting held on January 10, 2021 during the open hearing. Following is a summary of her remarks.

The SETG expressed their appreciation for the leadership and assistance of Mr. Hal Prince (FL), the NCWM board and staff, Mr. David Aguayo (San Luis Obispo Co., CA) and the PDC in helping to create the Task Group. Many of the task group members worked on the policy item before the S&T to establish user requirements on fuel dispensers to prevent skimming, and during that time recognized the importance of education and training.

The SETG's mission to educate the membership and bring together all stakeholders in sharing information on skimming. The SETG recognizes that technology changes, include the devices used to steal debit and credit card information, the technology to prevent these thefts, and the criminals become more organized and sophisticated. NCWM provides a powerful platform to bring together all stakeholders – state officials, law enforcement, manufacturers, service companies, retailers, security providers and consumers.

In organizing the task group, it was decided that having co-chairs representing both regulatory officials and the private sector demonstrates partnership in combatting skimming and the criminal organizations.

The SETG held their first meeting on Sunday, January 10, 2021 via web conference. The number of attendees who attended the meeting was remarkable. It clearly demonstrated that there is a significant need for knowledge on this issue. The task group discussed and finalized their 2021 goals to:

1. Establish a library of resources for the public on the NCWM website. The resources will consist of videos, articles, reports, checklists, contact information, best practices, and other information. The task group recognized that there may be some sensitive or proprietary data that should not be put on the public-facing website but may be shared with the membership or a targeted group of the membership. Alternative distribution methods would be determined and used in these cases. Communicating the availability and location of these resources to the membership and beyond is an important element of the strategy and project.
2. Host presentations and briefings from subject matter experts at future NCWM meetings. The task group is planning to provide such a briefing at the NCWM Annual Meeting in July 2021. The Committee is looking at 3 key constituencies to provide presentations:
 - Law enforcement – overview of the landscape of activity on skimming (e.g., U.S. Secret Service)
 - Private sector security experts – to share what they are seeing and describe the types of technology being used by the criminals and methods used to combat skimming
 - Retail/industry – updates on the transition to EMV card readers, etc.

The task group is also working to identify other key stakeholders to either present or to join. These key stakeholders included financial institutions such as banks, credit card providers, and credit unions.

- 1 The task group welcomes volunteers and encourages participation from all members. If you or your staff are
2 interested, contact Ms. Paige Anderson (NACS), Mr. John McGuire (NJ), members of the PDC, or the NCWM staff.

Skimmer Education Task Group Members		
Co-Chair	Paige Anderson	NACS
Co-Chair	John McGuire	New Jersey
Public Sector	Bobby Fletcher	Louisiana
Public Sector	John Larkin	California
Public Sector	Mike Harrington	Iowa
Public Sector	Vince Wolpert	Arizona
Public Sector	Scott Borse	PEI
Public Sector	Owen Dewitt	FlintLoc Technologies, LLC
Public Sector	Brent Price	Gilbarco, Inc.
Public Sector	Mike Roach	Invenco Payment Systems
Public Sector	Scott Schober	Berkley Varitronics Systems

- 3 NCWM 2021 Interim Meeting: The 2021 Interim Meeting was held virtually and immediately following the
4 conclusion of the NCWM 2020 virtual meeting.
- 5 Ms. Kristin Macey (CA) indicated it has been invaluable to share lessons learned and techniques on detecting
6 skimmers. Sharing experiences with law enforcement agencies, including local and state law enforcement, FBI, and
7 Secret Service is helpful. Ms. Macey recommends the task group continue these conversations.
- 8 Ms. Cheryl Ayer (NH) shared that they worked with the Secret Service in November 2020 to inspect dispensers in
9 several cities. Ms. Ayer stated that New Hampshire fully supports the Skimmer Education Task Group.

NEWMA Report
<p>Regional recommendation to NCWM on item status:</p> <p> <input type="checkbox"/> Recommend as a Voting Item on the NCWM agenda <input checked="" type="checkbox"/> Recommend as an Information Item on the NCWM agenda <input type="checkbox"/> Recommend as an Assigned Item on the NCWM agenda <i>(To be developed by an NCWM Task Group or Subcommittee)</i> <input type="checkbox"/> Recommend as a Developing Item on the NCWM agenda <i>(To be developed by source of the proposal)</i> <input type="checkbox"/> Recommend Withdrawal of the Item from the NCWM agenda <i>(In the case of new proposals, do not forward this item to NCWM)</i> <input type="checkbox"/> No recommendation from the region to NCWM <i>(If this is a new proposal, it will not be forwarded to the national committee by this region)</i> </p>
<p>Comments and justification for the regional recommendation to NCWM: <i>(This will appear in NCWM reports)</i></p> <p>John McGuire (New Jersey), co-chair of NCWM Skimmer Education Committee Task Group (TG) provided an update. The TG is trying to put information together to be posted to the NCWM website that would help regulators and industry educate themselves on skimmers. Possibly videos or pictures would help interested parties identify skimmers in RMFDs. These kind of tools and information would be ideal for assisting the community with identifying and implementing appropriate protocols when skimmers are discovered. The Committee looks forward to hearing future updates from the TG.</p> <p>No other comments were heard on this item.</p>

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- 1 Mr. Marc Paquette, Vermont | Committee Chair
 - 2 Mr. Angel Nazario, City of Boston, Massachusetts | Member
 - 3 Mr. Ethan Bogren, Westchester County, New York | Member
 - 4 Mr. Bill Callaway, Crompco | AMC Representative
 - 5 **Professional Development Committee**

Appendix A

Summary of NIST OWM Training Conducted in 2019

(Item EDU-2)

Summary of 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

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HB 130 – Uniform Pkg & Labeling Reg	06/19/19	Web-based	10
HB 133 – Pkg & Labeling Overview	09/03/19	Web-based (NJ)	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)	75

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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

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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	05/11/20 (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