



National Conference on Weights and Measures
"That Equity May Prevail"

2018 Annual PDC Report

Professional Development Committee Report



National Conference on Weights and Measures

"That Equity May Prevail"

Office	Name	Affiliation	Term Ends
Committee Chair	Lori Jacobson	South Dakota	2018
Member	Gene Robertson	Mississippi	2019
Member	Marc Paquette	Vermont	2020
Member	Marco Mares	San Diego County, California	2021
Member	Jean Kliethermes	Missouri	2022
Associate Membership Representative	Richard Shipman	Rice Lake Weighing Systems, Inc.	2018
Safety Liaison	Julie Quinn	Minnesota	NA
NIST Liaison	Tina Butcher	NIST, Office of Weights and Measures	NA



National Conference on Weights and Measures
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EDU-1 Professional Certification

Professional Development Committee Report



Certification Program Growth

Certificates Issued

*Statistic based on October 1st to September 30th calendar year

	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17
Count in Year	44	94	106	60	199	135	140
Cumulative	44	138	244	304	503	638	778

Certification (posted)	Certificates
RMFD (5/2010)	306
Small Scales (8/2012)	179
Package Check (8/2012)	111
Medium Capacity (4/2015)	75
Large Capacity (4/2015)	55
VTM (4/2015)	52



States with Highest Utilization

State	Certificates
Missouri	102
Minnesota	92
Maryland	70
Washington	48
Mississippi	45
Virginia	41
Kansas	36
Wisconsin	36
Nebraska	33
California	30
Alaska	25
North Carolina	25
New Mexico	23
Nevada	22



EDU-1 Professional Certification

Examinations, Announcements, and Modules delivered but not yet implemented (proctoring)

- Basic Competency – Weighing
- Basic Competency – Measuring

Next Professional exams in pipeline include:

- LPG Liquid Measuring
- Precision Scales – looking for SME's
- Price Verification
 - *Look for Modules on website*



Appreciation to SME's

- The PDC appreciates the work of our SME's
- The PDC hopes that state directors will encourage their staff to volunteer as SME





Proctoring System Development

- Proctoring system is critical to accreditation of exams
- Rules for Candidate and Proctor to maintain the integrity of the certification
- Considering how to establish uniform controls for State, local, and private testing centers
- Board met prior to this meeting to address details and rollout of proctoring system for all exams



Exam Survey

Plan to use Survey Monkey to collect data and feedback from candidates on:

- Exam experience
- Ease of ordering and taking exam
- Difficulty of exam in relation to learning objectives
- Usefulness of NCWM resources for exam preparation
- Demographic data

Working with Board on content and implementation



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EDU-2 Training

Professional Development Committee Report



EDU-2 – Training – NIST OWM Laws & Metric **FY 2017**

- **Administrators' Workshop (All OWM Programs)**
 - April 2017 – NIST Gaithersburg, MD - 36 participants
- **NIST HB 130 - Packaging & Labeling**
 - December 2016 - CT
 - April 2017 – TX
 - June 2017 – MD (Industry Only Class)
 - September 2017– MN
- **NIST HB 130 - Price Verification**
 - May 2017 – NEWMA - NY
- **NIST HB 133 – Checking the Net Contents of Packaged Goods, Basic**
 - March 2017 – IL
 - March 2017 – NC
- **NIST HB 133 – Chapter 4 – Count, Linear Measure, Area, Thickness**
 - October 2016 – CA



EDU-2 Training – NIST OWM Laboratory Metrology - FY 2017

- **Fundamentals of Metrology**
 - Four seminars - Oct 2016; Jan 2017 (SIM only); Feb 2017 (2 seminars); June 2017
- **Mass Metrology Seminar**
 - Three Seminars – Oct /Nov 2016; March 2017; May 2017
- **Project-based Learning Applied to Metrology (12 students)**
 - November 2016 – Mexico
- **Advanced Mass Seminar - August 2017**
- **Volume Metrology - June 2017**
- **Webinars –Multiple Sessions and Topics**
 - Topics including: Basic Uncertainty Concepts; Calibration Certification Evaluation; Calibration Method Validation; Conducting Management Reviews; Contract Reviews; Designing & Implementing OJT; Document Control; Traceability and Calibration Intervals; Internal Auditing; Intro to Blooms Taxonomy and Learning Objectives; Software Verification and Validation; State Lab Annual Submissions
- **Statistics in Laboratory Metrology (651 participants)**



EDU-2 Training – NIST OWM Laboratory Metrology - FY 2017

- **MidAmerica Measurement Assurance Program (MidMAP)**
 - October 2016
- **Southwestern Measurement Assurance Program (SWAP)**
 - October 2016
- **Caribbean Measurement Assurance Program (CaMAP)**
 - April 2017
- **Southeastern Measurement Assurance Program (SEMAP)**
 - April 2017
- **Western Regional Metrology Assurance Program (WRAP)**
 - May 2017
- **Northeast Measurement Assurance Program (NEMAP)**
 - September 2017



EDU-2 Training – NIST OWM Legal Metrology Devices - FY 2017

- **Compressed Natural Gas Metering Systems**
 - April 2017 – UT
 - June 2017 – IN
- **LPG Liquid-Measuring Systems**
 - October 2016 – AK
 - April 2017 – OR
- **Retail Motor-Fuel Dispensers**
 - June 2017 – CA
- **Livestock and Animal Scales**
 - June 2017 – KS
 - Sept 2017 – WWMA - AZ
- **Medium Capacity Scales**
 - May 2017 CWMA Annual Meeting



EDU-2 Training - NIST OWM Laws & Metric **FY 2018/2019**

- **NIST HB 130 - Packaging & Labeling**
 - March 2018 - CA
 - June 2018 – OH
- **NIST HB 130 - Price Verification**
 - October 2017 – SWMA - AK
 - February 2018 - CA
 - May 2018 - FL
 - *October 26, 2018 (Baton Rouge, LA)*



EDU-2 Training - NIST OWM Laws & Metric **FY 2018/2019**

- **NIST HB 133 – Checking the Net Contents of Packaged Goods, Basic**
 - October 2017 –CA
 - March 2018 – MO
 - April 2018– AL
 - May 2018 –FL
 - *October 22-25, 2018 – Baton Rouge, LA*
 - November 5-8, 2018 – Needham Heights, MA
 - *April 1-4, 2019 – Gaithersburg, MD*
 - *April 15-18, 2019 – Glendale, AZ*
- **NIST HB 133 – Chapter 3 – Volumetric**
 - February 2018 – CA



EDU-2 Training - NIST OWM Lab Metrology **FY 2018/2019**

- **Fundamentals of Metrology**
 - Completed: December 2017; February 2018 (2 seminars); April 2018; June 2018
 - *Upcoming:* October 29 – November 2, 2018; Feb 4-8, 2019; Feb 11-15, 2019
- **Mass Metrology Seminar**
 - Completed: Oct/Nov 2017; May 2018
 - Upcoming: Oct 15-26, 2018; March 11-22, 2019
- **Advanced Mass Seminar**
 - Upcoming: August 13-23, 2018; April 29-May 9, 2019
- **Volume Metrology**
 - Completed: June 2018
 - Upcoming: August 12-16, 2019
- **Balance and Scale Calibration and Uncertainties – Jan 2018**
- **Webinars – Multiple Webinars (See OWM Calendar of Events)**
 - Topics including: Basic Uncertainty Concepts; Calibration Certification Evaluation; Calibration Method Validation; Conducting Management Reviews; Contract Reviews; Designing & Implementing OJT; Document Control; Traceability and Calibration Intervals; Internal Auditing; Intro to Blooms Taxonomy and Learning Objectives; Software Verification and Validation; State Lab Annual Submissions



EDU-2 Training - NIST OWM Lab Metrology **FY 2018/2019**

- **Selecting Field Standards/Hoisting & General Safety**
 - NEWMA – May 2018 – NY
 - CWMA – May 2018 - IL
- **Southwestern Measurement Assurance Program (SWAP)**
 - October 2017
 - *September 17-20, 2018*
- **Southeastern Measurement Assurance Program (SEMAP)**
 - April – May 2018
- **Western Regional Metrology Assurance Program (WRAP)**
 - May 2018
- **Northeast Measurement Assurance Program (NEMAP)**
 - *September 10-13, 2018*
- **MidAmerica Measurement Assurance Program (MidMAP)**
 - October 2017
 - *October 1-4, 2018*



EDU-2 Training – NIST OWM

Legal Metrology Devices **FY 2018/2019**

- **Compressed Natural Gas Metering Systems**
 - April 2018 – CA
- **Livestock and Animal Scales**
 - April 2018 – VA
- **LPG Liquid-Measuring Systems**
 - May 2018 – CA
 - June 2018 – OH
 - *Spring 2019 - TN*
- **Retail Motor-Fuel Dispensers**
 - October 2017 – PA W&M Association – PA
- **Vehicle-Tank Meters**
 - *Spring 2019 - KS*



EDU-2 - Training – NIST OWM

- **Measurement Systems for Legal Metrology – New Webinar**
 - Intro to measurement system basics, including the use of unit symbols, prefixes, and transitioning within/between measurement systems.
 - ideal for those unfamiliar with performing unit conversion calculations.
- **Lab Metrology Info Hours - Webinars**
 - Informal webinars on a variety of topics such as Adjusting Calibration Intervals; Best Practices of Lab On-the-Job Training; ISO/IEC 17025; Measurement Assurance Assessments; Risk Assessments and New ISO 17025; Procedure Updates; Risk Assessments for the Essentials of Traceability; Procedure Updates; and Traceability Assessments for Laboratories
 - 504 people have participated to date



EDU-2 Training – NIST OWM

- Regional Weights and Measures Association Training
 - Requests from regionals for concurrent or consecutive training for past several years
 - OWM distributed a list of possible topics to regional points of contact
 - Requesting input on topics for FY 2019
- Requesting input on ideas for future training topics for development
 - From Regionals
 - From Others



EDU-2 Training – NIST OWM

Proposed Topics for NIST OWM Training at 2019 Regional W&M Association Meetings

Packaging and Labeling and Price Verification:

- Price Verification Test Procedures (1-2 days)
- Uniform Packaging & Labeling Regulation (4 days)
- Uniform Packaging & Labeling Regulation – Overview (1 day)
- NIST Handbook 133 – Chapters 1 and 2, Gravimetric Testing (4 days)
- NIST Handbook 133 – Chapters 1 and 2, Gravimetric Testing – Overview (1 day)

Devices:

- Livestock and Animal Scales (3 days)
- Medium-Capacity Scales (3 days)
- Retail Computing Scales (3 days)
- Retail Motor-Fuel Dispensers Short Course (3-1/2 days)
- Selection and Testing of Reference Scales (1 day)
- Vehicle and Axle-Load Scales (3 days)
- Vehicle-Tank Meters (3 days)



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EDU-3 Instructor Improvement

Professional Development Committee Report



EDU-3

Instructor Improvement

- Continuing to work on infrastructure for program
 - Procedures for Selection, Evaluation, and Feedback to Instructors
 - Instructor Competency Assessment/Feedback Instrument (Using US Dept of Ed model)
 - For overall development of trainers
 - Beginning to implement and use tools with trainers
 - Instructor Competency Course Assessment Instrument - for specific learning events
 - Criteria for Developing Participants in the NIST Instructor Training Program and Use of the NIST-NCWM Training Grant
 - Instructor Agreement
 - Shared with NCWM BOD in May 2017
- Discussing how to proceed with the overall program and considering options
 - Looking at funding in light of budget situation
 - Cannot replenish NCWM-NIST grant at this point, but may use some invitational travel
- In the meantime, continuing to use external trainers as co-instructors
 - Sincerely appreciate time devoted by those trainers and their directors' support



EDU-3 Instructor Improvement

NIST Training Using External Trainers or Teaching Assistants August 2017 to July 2018

Course	Date	Location	Students Total	NIST Instructor	T3 or teaching Assistant	Funding Source
NIST HB 130 Uniform Pkg & Labeling – 4 day	9/25/2017	MN	11	Sefcik	Rachelle Miller	NCWM grant
NIST Handbook 130 Price Verification	10/10/2017	AR	14	Sefcik	Doug Rudy	NCWM grant
NIST HB 133 - Checking Net Contents - Basic	10/23/2017	CA	19	Sefcik	Kathy De Contreras	NCWM grant
RMFD Training – 3-day	10/23/2017	PA	19	T. Butcher	Scott Simmons	NCWM grant
Balance & Scale Calibration & Uncertainties*	1/9/2018	NIST	9	Miller	Daniel Walker	NIST
NIST HB 133 Chapter 3 Volumetric Meas.	2/5/2018	CA	12	Sefcik	Annie Tsou	NCWM grant
Fundamentals of Metrology*	2/5/2018	NIST	12	Harris	Lina Ng	NIST
NIST HB 130 Uniform Pkg & Labeling – 4 day	3/12/2018	CA	26	Sefcik	Kathy de Contreras	NCWM grant
NIST HB 133 - Checking Net Contents - Basic	3/26/2018	MO	19	Sefcik	Steve Galvin	NCWM grant
Livestock and Animal scales	4/10/2018	VA	14	Barton	Greg Gholston	NCWM grant
NIST HB 133 - Checking Net Contents - Basic	4/16/2018	AL	16	Sefcik	Michael Barrett	NCWM grant
LPG Training	5/14/2018	CA	24	T. Butcher	Scott Simmons	NCWM grant
Mass Metrology Seminar*	5/14/2018	NIST	11	Harris	Lisa Corn	NIST
LPG Training	6/10/2018	OH	21	T. Butcher	Mike McGoff	NCWM grant
Fundamentals of Metrology*	6/11/2018	NIST	11	Harris	Daniel Walker	NIST
Total Students			238			

*Lab Metrology Teaching Assistants paid from class budget rather than NCWM grant.



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EDU-4 Recommended Topics

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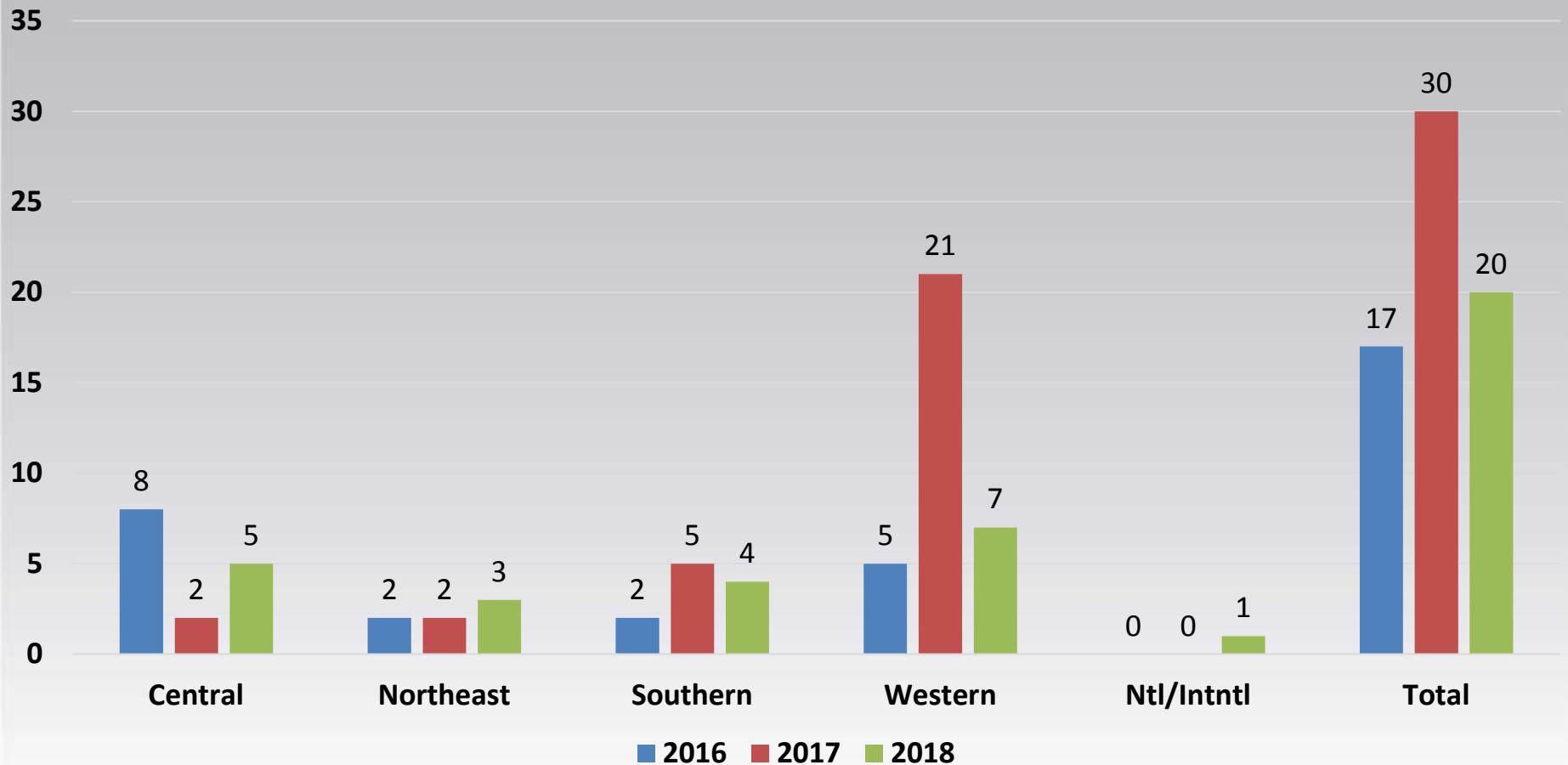
PMT-1 Safety Awareness

Professional Development Committee Report



Number of Participants Down in 2018 vs 2017

Completed Surveys by Region and Year

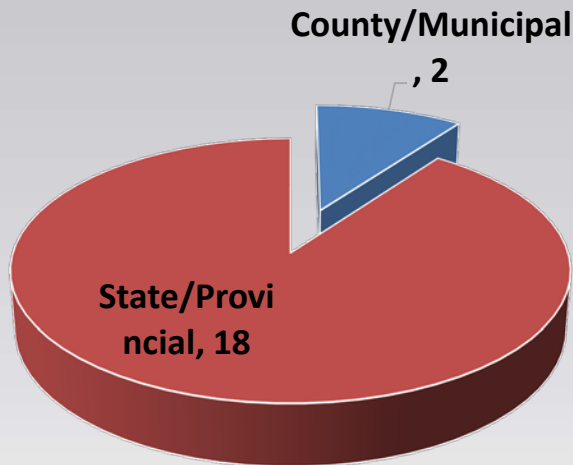




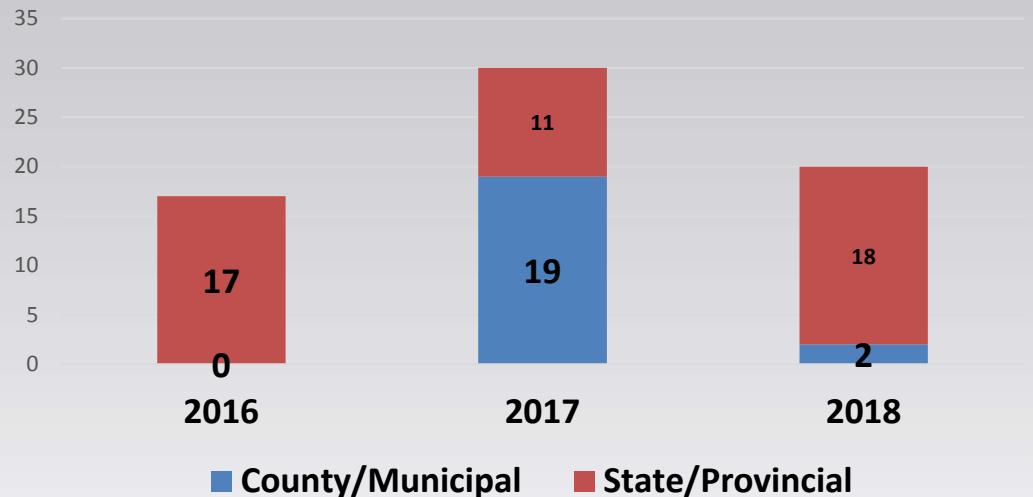
2017 Survey Had Greater County/Municipal Participation

Did 2018 state responses include county information reported independently in 2017?

2018 Completed Surveys by Organization type



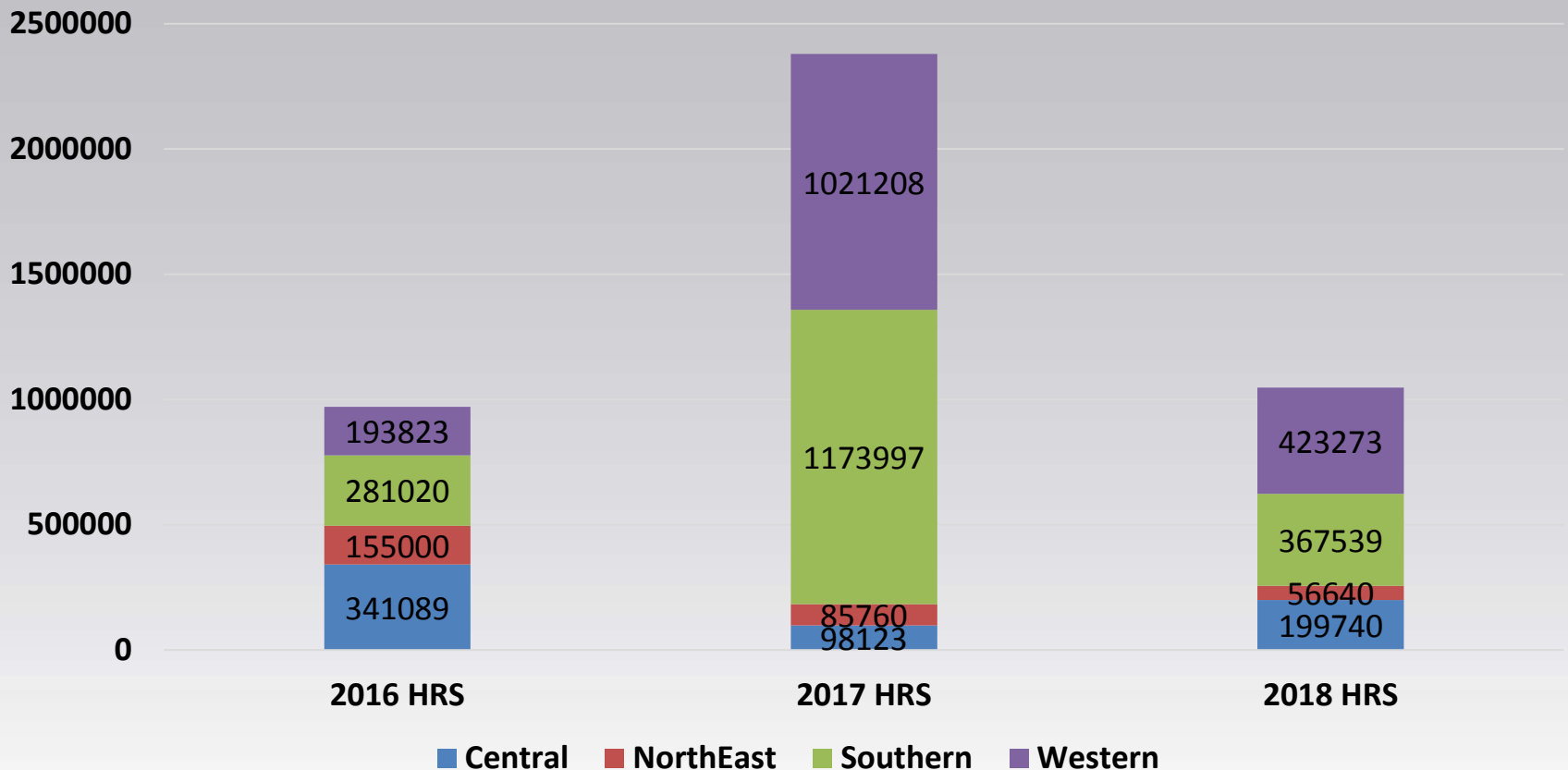
Completed Surveys by Organization Type and Year





2017 Survey Covered More Employee Hours

Employee Hours by Year and Region





Making Completion Easier

Instructions sent out this year on second solicitation email

Will send instructions in future years with first solicitation for responses





How Can We Garner Greater Participation?

- Ask safety liaisons to contact their member states directly?
- Put a members-only link on safety page where counties and private companies can access the survey?
- Include a reminder in the NCWM Newsletter ?





2018 Injury Results by Region

- 2 Days Away (Lost Time) Injuries
- 1 Restricted Time Injury
- 4 Injuries with both Lost Time and Work Restrictions

Region	Employees	Hours	Lost Time Only	Restricted Time Only	Both Lost & Restricted	Total
Central	112	199740	1	0	2	3
NorthEast	32	56640	0	0	0	0
Southern	188	367539	1	0	0	1
Western	227	423273	0	1	2	3
Ntl/Intntl	6	11280	0	0	0	0
2018 Total	565	1058472	2	1	4	7



Days Away/Restricted Time (DART) Rates

Allows organizations in the same field to compare safety - regardless of size

OSHA formula equates to company with 100 people working 40 hours/week for 50 weeks/year

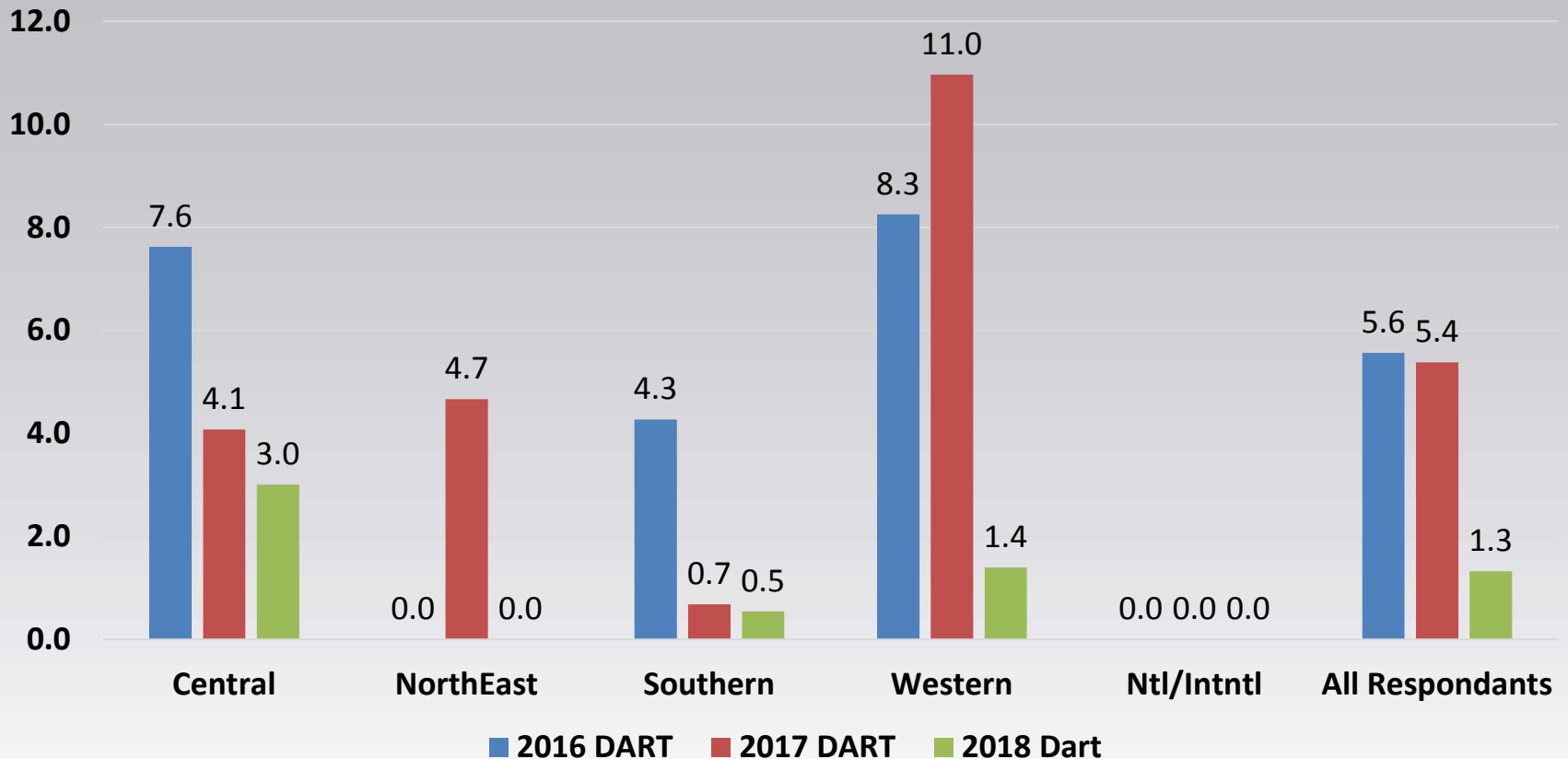
No. of Incidents X 200,000

$$\text{DART} = \frac{\text{No. of Incidents X 200,000}}{\text{No. of Employee labor hours worked}}$$



Reliable Participation/Time = More Meaningful Data

DART by Region and Year

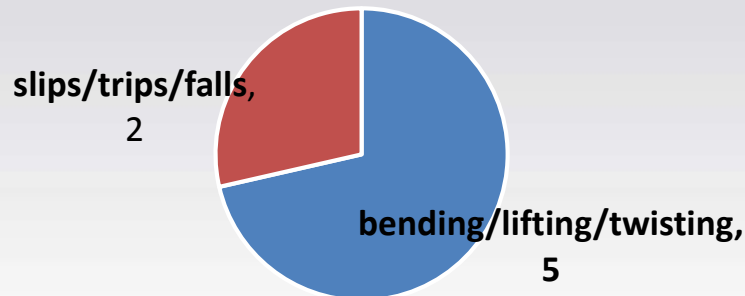




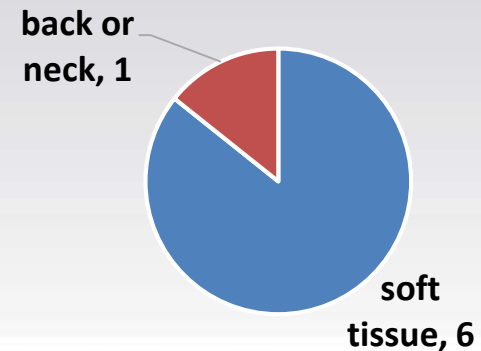
2018 Injury Causes and Types

- All injuries occurred in field
- Top cause was bending/lifting/twisting followed by slips/trips/falls (same as 2016 and 2017 surveys)
- 1 respondent also reported lost time from bending/lifting/twisting incident which occurred previous year

2018 Causes of Injuries



2018 Injury Types





Descriptions and Impact of Incidents

7 incidents plus 1 near-miss and 1 carryover
Ergonomics can cause life-changing injuries

Activity description	Injury Description	Days Lost	Days restricted
pushing/pulling	strain	1	0
lifting 50# weight from vehicle	pulled arm and shoulder muscle	0	21-60
lifting manhole covers from USTs	joint injury requiring surgery ended in permanent disability	60+	60+
lifting 30 pound box into truck	snapped tendon/torn muscle	21-60	0
Lifting a J bucket out of truck	Sacroiliac Joint Dysfunction	2	5
stepped off truck onto uneven surface	sprain	3	0
tripped over a cable	strain or sprain	60+	6-10
Injury filed prior to 2017 but time continued to be lost to this claim		60+	1
backed into another vehicle	vehicle damage but no people damage	<1	0



Summary of 3 Years and 4.3M Employee Hours

Near-Misses = Leading Indicators

All Near-Misses 2016 - 2018

Cause	No. of Near-Misses
vehicle accident	12
chemical exposure	4
bending/lifting/twisting	2
slips/trips/falls	1
weather	1
other (cutting/puncturing)	1
total	21

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

- Same top 4 causes; just in different order
- Vehicle accidents takes 2nd place if you count near misses
- Once an injury occurs, 20%-30% chance of at least 60 days lost

Injuries = Lagging Indicators

All Reported Injuries 2016 - 2018

Cause	No. of Injuries	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	38	9	7



How Do We Improve?

What can NCWM and its members do to mitigate top hazards in the next year?

- Bending/Lifting/Twisting
- Vehicle Accidents
- Slips/Trips/Falls
- Chemical Exposure



Coming Soon From NCWM Safety Task Group

NCWM Safety Program Toolbox

Keeping employees safe is a challenge faced by private companies and government agencies alike. Each organization is ultimately responsible for creating and maintaining its own safety program. This toolkit is an attempt to provide links to resources which will be useful to Weights & Measures organizations whether they are just beginning to establish their safety programs, or they have already spent years refining them.

The safety resources included in this toolkit represent just a small fraction of the vast amount of safety information available on the World Wide Web. Most of the information in the kit is provided by government resources such as OSHA, NIOSH, CDC, etc. In a few cases, toolkit links lead to safety blogs or information provided by individuals or companies who also sell safety products. These links are included for the information they contain, and in no way are an endorsement for or against the safety products themselves. Toolbox users are encouraged to exercise the same caution they would use whenever evaluating products available for sale on the internet.

To us the toolbox: *Ctrl+ Click on any heading below to find helpful links on desired topics*

(If you are brand-new to safety, we suggest you start with the first section on General Information.)

General Information on Creating and Managing a Safety Program
Making the Economic Case for Safety
Identifying Hazards
Examples of Typical Hazards
ERTK Hazards/Hazard Communication Requirements
Addressing Hazards
Training
Coordination and Communication on Multi-Employer Work Sites
Program Evaluation

Suggestions for improvement? Please contact Safety Liaison Julie Quinn (julie.quinn@state.mn.us) to suggest new links or to report problems with existing links.

General Information on Creating and Managing a Safety Program

- [OSHA Safety and Health Program Management Guidelines](#)
- [OSHA Small Business Handbook](#)
- [OSHA Help For Employers](#)
- [NCWM Newsletter Safety Articles](#)

Making the Economic Case for Safety

- [OSHA's Safety Pays Cost Estimator](#)
- [CDC's WISQARS™ \(Web-based Injury Statistics Query and Reporting System\)](#)
- [How Your Experience Modification Rate \(EMR\) is Calculated and How it Affects Your Bottom Line \(YouTube Video\)](#)
- [2016 NCWM Annual Safety Survey](#)
- [2017 NCWM Safety Survey](#)



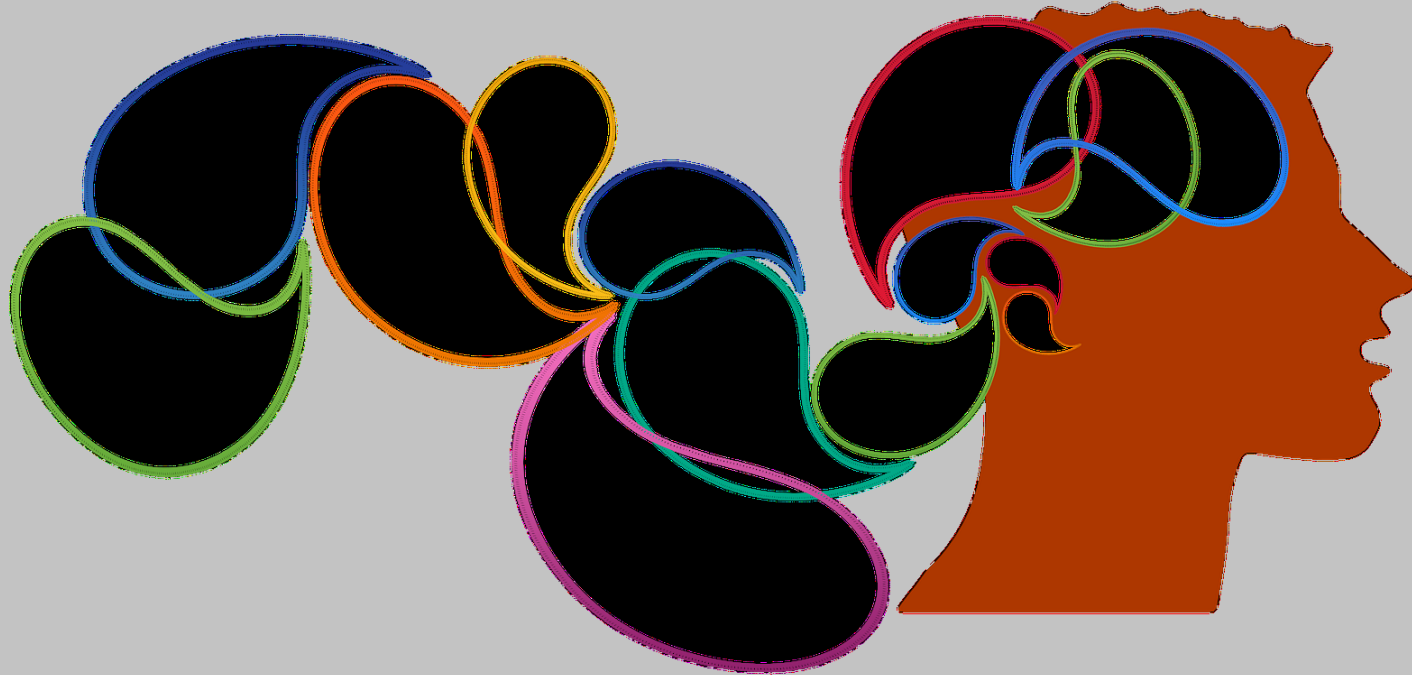


Thanks to Safety Task Group

Safety Task Group		
Office	Name	Affiliation
Chair	Julie Quinn	Minnesota
Public Sector Member	Jason Flint	New Jersey
Public Sector Member	Georgia Harris/Doug Olson	NIST, Office of Weights and Measures
Public Sector Member	Elizabeth Koncki	Maryland
Public Sector Member	Matt Maiten	Santa Barbara County, California
Public Sector Member	Brenda Sharkey	South Dakota
Public Sector Member	Mike Sikula	New York
Private Sector Member	Tisha Arriaga/Jeff Griffith	Marathon Petroleum, LLC
Private Sector Member	Bill Callaway	Crompco
Private Sector Member	Remy Cano	Northwest Tank and Environmental Services, Inc.
Private Sector Member	Brad Fryburger	Rinstrum, Inc.
Private Sector Member	Robert LaGasse	Mulch and Soil Council
Private Sector Member	John Lawn	Rinstrum, Inc.
Private Sector Member	Richard Shipman	Rice Lake Weighing Systems, Inc.



Thoughts and Comments?





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Thank You!