

# **PASAP-16**

## **Standard Administrative Procedure**

### **PA Standards Lab**

### **Staff Training**

#### **1. Introduction**

**This is the Pennsylvania Standards Laboratory (PSL) procedure for staff training.**

#### **2. Purpose**

**To maintain PSL's management system and scope of accreditation through the use of highly trained, motivated and capable staff. The training objectives are documented in the annual Management Review.**

#### **3. Responsibility**

**The Laboratory Supervisor is responsible for identifying both internal and external training opportunities, assigning staff to participate, and ensuring that the staff completes National Institute of Standards and Technology Office of Weights and Measures (NIST OWM) metrology training, including NIST OWM assigned Laboratory Audit Problems (LAP's) in a timely manner. The laboratory supervisor will allocate time for on the job training, self-study, and professional development.**

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#### **4. Operations**

**4.1 Upon starting employment all new employees to the PSL are on a 6 month probationary period. During this period the new employee will receive hands on instruction from the laboratory supervisor but will not be permitted to work without supervision from a NIST OWM recognized metrologist. Also during this time, the new employee is being evaluated for future training.**

# Staff Training

## Benefits of the probationary period before NIST Training

Management	New Employee
Good fit for the team	Do I want to work for this organization?
Evaluate time management, communication and general office skills	Learn workflow, daily workload and general expectations of the job – Do I want to do this?
Evaluate interest in learning, maintaining the management system, technical competence and ability to work independently.	Learn the management system, care of laboratory equipment and standards, Excel and math skills required to do the job. - Can I do this?
Express the organizations long term goals.	Do my goals and the organizations goal agree?

# Staff Training

## Results of the probationary period before NIST Training

### Employee Results

Attending NIST training as a permanent part of the laboratory staff = Less Stress

Afforded the time to complete the NIST Basic Metrology CD

Exposed to and actively participated in the management system

Conducted measurements using the SOP's

### Management Results

Using laboratory and NIST training resources wisely, resources are not unlimited!

Employee will be a good reflection on the laboratory and its future

Employee will have a positive training experience because of the on the job training given during the probationary period.

Employee will return from training ready to improve the laboratory

## When Training is not available at NIST

Discuss the learning objectives and **document these objectives along with the expected goals of this training.**

Read the SOP

Discuss the SOP

Conduct practice measurements, explain each step and review the results together.

Read the SOP again

Have employee explain the SOP in a way that would be acceptable to an assessor

Conduct official measurements with supervision, continually monitoring the process and results.

Successfully participate in a proficiency test – document these results

When training is complete in a form or document **summarize the training given, provide feedback.**

**Were the training goals met?**

## Other Internal Training Opportunities

### Internal Lap Problem – Provide Feedback

#### Length Bench Calibration LAP # 8

Visually Inspected Length Bench for any defects or contamination.

Placed the PSL calibrated Surveyors Tape (13808) under the clamp at the zero end of the Length Bench. Extended the tape beyond the end roller and applied tension by using a calibrated 10 lb weight and clamp.

Placed calibrated thermometer at the 1/3 point of bench/tape and recorded the initial temperature. Moved to the 2/3 point of the bench/tape and recorded the initial temperature.

Adjusted the tape clamp zero end of the bench so that the bench and tape zero aligned as close to center as possible. Inspected the tape to be laying parallel to the bench.

Aligned microscope reticle to be parallel with the bench and tape.

Observed and recorded left and right side readings of zero of the bench and tape.

Moved the microscope to each graduation on the bench observing, reading and recording left and right readings of the bench and tape.

Returned to zero, observed and recorded final zero reading on bench and tape. Checked the initial zero and final zero readings difference to make sure it did not exceed 0.001 inch proving the tape did not move.

Flexed the surveyors tape by removing tension weight and moving tape slightly. Readjusted tape to the length bench, applied tension, check tape to be parallel to the bench.

Repeated zero reading, each graduation, final zero and checked difference for the bench and tape and recorded.

Placed calibrated thermometer at the 1/3 and 2/3 point of the bench/tape and recorded the final temperatures.

After all measurements were completed the results were evaluated.

#### Note:

Due to the calibration of the length bench the coefficient of linear expansion of the standard and unknown will be switched. They will be as follows; Unknown (Bench) 0.00001060/°C and Standard (Tape) 0.00001160/°C

## Other Internal Training Opportunities

### Internal Technical Audit of the SOP's

## Using NIST Job aide SAP 10 Technical Assessment of Software (Form A) (2010)

Date	Action Number	Description	Assigned to	Assigned Date	Completed Date	Reviewed Date	Result	Type of Action
10/13/16	<del>A16025</del>	2016 Internal Technical Audit - Changes to Form PA11 Stopwatch Calibration	Dave Welker/Dustin Claycomb	08/16/16	01/09/17	01/09/17	PA11, PA11 Validation file and PASOP-01 were revised per the audit findings.	Improvement Action
10/13/16	<del>A16026</del>	2016 Internal Technical Audit - Changes to Form PA15 Force Gauge Calibration	Dustin Claycomb	01/04/17	02/28/17	02/28/17	PA15, PA15 Validation file were revised per the audit findings.	Improvement Action

**PASAP-16**  
**Standard Administrative Procedure**  
**PA Standards Lab**  
**Staff Training**

**5. Records**

The Laboratory Supervisor maintains records of all training completed by the metrology laboratory staff. Form PA53 “Personnel Training and Competency” will be used. The actual completed file can be found on the PASL secure drive in a folder named “Training”.

Personnel Training and Competency						
Staff: <u>Dustin Claycomb</u>			Position: <u>Metrologist</u>			
	Training Dates		Hours	Completed		Comments
	From	To		Yes	No	
PA1 and PA3 Training	07/28/14	07/28/14	6.0			Management System – Logging and Tracking of Calibration Artifacts
PASOP-14 Length Tape Calibration	07/29/14	09/17/14	30			Completed NIST Basic Metrology LAP#8 Length Bench Calibration
100 ft Round Robin ROT# 141099	08/04/14	08/04/14	7.5			
PASOP 04 Wheel Load Weighers	08/05/14	08/05/14	3.5			0-20,000 lb in Pairs/Singles
110 Single WLW Testing with Rich Radel	08/05/14	08/13/14	26.5			Calibration of new PSP Haenni 101 WLW Scales
55 Pairs WLW Testing with Rich Radel	08/05/14	08/13/14	26.5			Calibration of new PSP Haenni 101 WLW Scales

# Who is qualified to train a new employee? Wheel Load Weigher example in PA

- Authorized Representative, Laboratory Supervisor, Authorized Signatory, Metrologist or other – they must be qualified to conduct the training. Objective evidence should be easy to find.
- Lab Supervisor – Hired and Trained in 2001 to test WLW's
- Tested WLW's 2001 through 2008
- 2006 - Conducted WLW Training at the C-RMAP in Colorado
- Successfully participated in 3 – Proficiency Tests 2001 through 2016
- Lab Supervisor trained Rich Radel in 2008 to test WLW's
- Rich Radel tested WLW's 2009 through 2014
- Rich Radel successfully participated in PT
- Rich is laboratory technical manager and authorized signatory for WLW's
- Rich was assigned the task of training new Metrologists WLW testing in 2014.

Standard Administrative Procedure  
PA Standards Lab

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### 3. Responsibility

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### 4. Operations

- 4.1 Upon starting employment all new employees to the PSL are on a 6 month probationary period. During this period the new employee will receive hands on instruction from the laboratory supervisor but will not be permitted to work without supervision from a NIST OWM recognized metrologist. Also during this time, the new employee is being evaluated for future training.
- 4.2 After successful completion of the probationary period, the new employee will be enrolled in the next available series of relevant training courses at NIST OWM.
- 4.3 Time will be allocated for the employee to become familiar with and put into practice all elements of the management system.
- 4.4 Time will be allocated for the employee as to complete NIST OWM required pre-work prior to attending classes at NIST OWM.
- 4.5 Time will be allocated for the employee to complete the Mass, Volume and Advanced Mass LAP's, after attending NIST OWM training courses for which they are required (See "PSL Metrology Certification Requirements Table")
- 4.6 The metrologist will receive a two-pay scale level increase for successfully completing PSL Basic Metrology Certification Requirements, (See "PSL Metrology Certification Requirements Table") effective the date the LAP is reviewed and approved by the laboratory supervisor. (see union agreement letter "Metrologist Agreement" March 2, 2007).
- 4.7 The metrologist will receive an additional two pay scale level increase for successfully completing PSL Intermediate Metrology Certification Requirements, (See "PSL Metrology Certification Requirements Table") effective the date the LAP problems are reviewed and approved by NIST OWM (see union agreement letter "Metrologist Agreement" March 2, 2007).

## Standard Administrative Procedure

## PA Standards Lab

- 4.8 The metrologist will also be required to attend and actively participate in the Northeastern Measurement Assurance Program (NEMAP) at any time before, during or after their training. The NEMAP training will keep the lab current and connected to all changes occurring in the measurement field and also the state metrology program.
- 4.9 The Metrologist will be required to participate in relevant NIST OWM webinars and or other training opportunities as deemed necessary by the lab supervisor.
- 4.10 The employee will be required to participate in appropriate computer courses offered by the Office of Administration as deemed necessary by the laboratory supervisor.
5. Records

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**PSL Metrology Certification Requirements Table (Prior to Jan. 6, 2012)**

<b>Metrology Task</b>	<b>PSL Basic Metrology Certification Requirements</b>	<b>PSL Intermediate Metrology Certification Requirements</b>	<b>PSL Advanced Metrology Certification Requirements</b>
NIST OWM Basic Mass Metrology CD-ROM – Pre-work (NIST OWM recommended)	X	X	X
Basic Laboratory Metrology Seminar (2 weeks)	X	X	X
Basic LAP problems	X	X	X
Intermediate Laboratory Metrology Seminar (1 week)		X	X
Intermediate LAP problems		X	X
Advanced Mass Metrology Seminar			X
Advanced Mass LAP problems			X

Standard Administrative Procedure  
PA Standards Lab

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**PSL Metrology Certification Requirements Table (After Jan. 6, 2012)**

Metrology Task	PSL Basic Metrology Certification Requirements	PSL Intermediate Metrology Certification Requirements	PSL Advanced Metrology Certification Requirements
NIST OWM Basic Mass Metrology CD- ROM – Pre-work (NIST OWM recommended)	X	X	X
Math Exam – Pre-work	X	X	X
Fundamentals of Metrology (1 Week)	X	X	X
Fundamentals Metrology LAP - Mass	X	X	X
Mass Metrology Seminar (2 weeks)	X	X	X
Fundamentals Metrology LAP - Volume		X	X
Volume Metrology Seminar (1 week)		X	X
Advanced Mass Metrology Seminar			X
Advanced Mass LAP problems			X