

United States Department of Commerce
Technology Administration
National Institute of Standards and Technology



A11103 760633

NIST
PUBLICATIONS

NIST Special Publication 791, 1992 Edition

State Weights and Measures Laboratories: State Standards Program Description and Directory

Georgia L. Harris

QC
100
.U57
791
1992
C 2

NIST
SP 791
1992
C-2

NIST Special Publication 791, 1992 Edition

State Weights and Measures Laboratories: State Standards Program Description and Directory

Georgia L. Harris

Office of Weights and Measures
National Institute of Standards and Technology
Gaithersburg, MD 20899

(Supersedes Special Publication 686 and SP 791, 1990 Edition)

March 1992



U.S. Department of Commerce
Barbara Hackman Franklin, Secretary

Technology Administration
Robert M. White, Under Secretary for Technology

National Institute of Standards and Technology
John W. Lyons, Director

National Institute of Standards
and Technology
Special Publication 791, 1992 Ed.
(Supersedes SP686 and 791, 1990 Ed.)
Natl. Inst. Stand. Technol.
Spec. Publ. 791, 1992 Ed.
127 pages (March 1992)
CODEN: NSPUE2

U.S. Government Printing Office
Washington: 1992

For sale by the Superintendent
of Documents
U.S. Government Printing Office
Washington, DC 20402

Foreword

In support of its mission to promote uniform standards of measurement throughout the country, the National Institute of Standards and Technology (NIST) received funding from Congress in 1965 to provide new standards of mass, length, and volume and the equipment needed to perform calibrations in these measurement areas to State weights and measures laboratories. This program, called the [New] State Standards Program, was established at NIST; to maintain the validity of these standards and to assure that they are used properly, NIST also:

- (1) trains State metrologists in the test procedures used in the NIST laboratories; and
- (2) conducts a voluntary certification program for State weights and measures laboratories.

Part I of this publication describes the certification activities of the State Standards Program. There are three general requirements for certification:

- (1) the State must have adequate facilities in which to perform the measurements;
- (2) the State metrologist must receive the necessary training and submit data demonstrating the results of applying test procedures; and
- (3) the laboratory must establish measurement control programs acceptable to NIST in the various measurement areas.

This approach to laboratory certification was endorsed by the 1983 National Conference on Weights and Measures. The Office of Weights and Measures at NIST has proposed the addition of certification programs for State laboratories in the areas of Grain Moisture and Petroleum Quality Testing since they have been requested by the State Weights and Measures agencies. Some tentative guidelines are outlined in Part I; specific certification requirements will be published in NIST Handbook 143, Program Handbook, or other appropriate document. Information regarding available laboratory services in grain moisture and petroleum quality have been included for the first time in this edition of the laboratory directory.

Part II is the directory of State weights and measures laboratories and lists the services they provide to State and local weights and measures agencies as well as to industry. The directory is intended to assist potential users of the laboratory services in locating and obtaining needed measurement services. The directory provides a summary table of measurement services and programs as well as the following information for each State or certified laboratory:

- (1) the certification period, if certified by NIST;
- (2) the laboratory staff member(s), address, and phone number;
- (3) services available; and
- (4) fees, if any, for services.

One objective of the Omnibus Trade and Competitiveness Act of 1988 is to make the International System (SI) of Units the primary measurement system in the United States. SI Units are the preferred measurement system in the State laboratories. State laboratories have primary standards in both "customary" and SI units, the laboratory equipment employ SI units, and training for State metrologists uses primarily the SI System of Units. However, the foremost system for commercial equipment for sales to the public is that of "customary" units. Descriptions of measurement services in this directory refer to whichever system is typically predominant for the type of service provided, although capabilities exist for measurement services in both systems of units.

Contents

Foreword	iii
PART I - Program Description	1
Introduction	1
Weights and Measures Laboratories	1
National Type Evaluation Program	1
Certified Measurement Areas	2
Tolerance testing	2
Mass	2
Volume	2
Calibration	2
Mass	3
Volume	3
Length	3
Frequency	3
Temperature	3
Certification Requirements	3
Weights and Measures Laboratory Requirements	3
Training and Evaluation	4
Measurement Control	4
National Type Evaluation Program	6
National Type Evaluation Program Requirements	6
Unevaluated Measurement Areas	7
Proposed Grain Moisture Laboratory Program and Certification Requirements	7
Proposed Petroleum Quality Laboratory Program and Certification Requirements	8
Summary	8
References	10
PART II - Laboratory Directory	11
Summary of Measurement Services and Programs	11
Alphabetical Index	11

PART I - Program Description

Introduction

Weights and Measures Laboratories

In 1965, Congress funded the National Institute of Standards and Technology (NIST, formerly the National Bureau of Standards) to establish the [New] State Standards Program to provide new standards of mass, volume, and length to the States, the District of Columbia, Puerto Rico, and the Virgin Islands to update their weights and measures laboratories and increase their measurement capabilities. The program also provided the laboratory equipment necessary for the States to use the standards in their measurement services.

New standards and equipment were issued to the States from 1967 through 1978. Since that time, many States have purchased additional equipment to increase their measurement capability and to expand into other measurement areas, such as liquid-in-glass thermometry, the frequency testing of tuning forks for police radar guns, and the testing of large volume and liquified petroleum gas (LPG) provers.

Prior to receipt of the standards and equipment, each jurisdiction was required to provide a laboratory facility meeting specifications established under the State Standards Program. In addition, the laboratory metrologist was required to complete training at NIST in the use of the standards and the equipment.

Subsequent to the issue of standards and equipment to the States, NIST instituted a program whereby State weights and measures laboratories are certified by measurement areas. Certification of State weights and measures laboratories is a part of the current State Standards Program. NIST does not certify the measurements made by a State, but recognizes that the State laboratory has an apparent

capability to perform reliable measurements and that the metrologist has been trained in the proper procedures to provide these measurements. The certification also indicates that the metrologist has fulfilled the requirements and submitted the data requested by NIST for certification. Each State laboratory is responsible for verifying its measurement traceability.

If a laboratory has not been certified, this does not necessarily imply that the laboratory is inadequate or that its measurements are not valid. It may indicate that a laboratory has not submitted the information necessary to permit NIST to evaluate its capability, in which case NIST cannot take a position regarding the capability of a noncertified laboratory.

National Type Evaluation Program

Under the National Type Evaluation Program (NTEP), new weighing and measuring devices are tested and evaluated to determine if they comply with the requirements in NIST Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices" [1] (see references p. 8). The Program is administered by NIST in support of the National Conference on Weights and Measures. Tested devices are intended for use in the commercial measurement system, that is, for use in weighing or measuring commodities to be sold to the general public.

Several State laboratories and the Federal Grain Inspection Service (FGIS) have acquired the capability and have been authorized by NIST to conduct type evaluations under the NTEP. These laboratories and the devices that they are authorized to evaluate are identified in this publication.

Certified Measurement Areas

A brief summary of each measurement area in the certification program is given under the headings of Tolerance Testing and Calibration. Some States offer services in other measurement areas (see Unevaluated Measurement Areas in Part I and directory listings in Part II) but, since NIST has not yet developed criteria to serve as the basis for laboratory certification in these areas, they are not included in the current certification program.

Each laboratory certified in a given area has been judged to be capable of providing the measurement services indicated. The range of standards that can be tested by a laboratory will depend upon the equipment it has purchased in addition to that received through the State Standards Program.

A general classification of the range of standards that can be tested is indicated by the headings in the tables of services available (see Part II). The mass classifications for tolerance testing are given in pounds because inch-pound standards are usually used. Mass classifications for calibrations are given in kilograms because metric standards are used. Comparable standards in other mass units of measure can also be tested.

Tolerance testing

A **tolerance** may be simply defined as the permitted difference between the nominal value of the standard and its actual value under specific conditions. **Tolerance testing** is the process for determining if the actual value of a standard is within tolerance. If a standard is not within tolerance it may be **adjusted** to bring the value within tolerance. To be certified to a tolerance class, a standard must comply with the specifications and tolerances for the specified tolerance class.

Mass

Tolerance testing of mass standards is usually done according to specifications included in:

- NIST Handbook 105-1 [2]

- American Society for Testing and Materials (ASTM) Standard E 617-91, Classes 4, 5, and 6 [3]
- NBS Circular 547, Classes P, Q, and T [4]
- NBS Circular 3, Classes A, B, and C [5].

Tolerance testing to International Organization of Legal Metrology tolerances of classes F_2 , M_1 , and M_2 and other tolerances can be performed upon request [6].

Volume

Tolerance testing of volume standards is divided into small-, intermediate-, and large-volume standards depending upon the laboratory standards to be used. A small-volume standard may have a capacity up to 25 gallons. The capacities of intermediate-volume standards range from 25 through 500 gallons. Large-volume standards have capacities in excess of 500 gallons. Though metric units (liters) are occasionally tested, the principal standard of volume tested is defined in units of gallons.

Glassware standards may be tested to NBS Handbook 105-2 [7] specifications and tolerances or to the tolerances stated in Federal regulations. Metal field standards are tested to NBS Handbook 105-3 [8] specifications and tolerances.

Calibration

Calibration is the process of comparing an unknown standard to a known standard and assigning a value, along with an uncertainty, to the unknown standard. The uncertainty expresses the extent to which that assigned value may be in error relative to its reference base, which typically is the national standard.

When calibrated by a State laboratory, the assigned value may or may not be within the specified tolerance. The correction and uncertainty assigned to the standard should therefore be used in subsequent measurements. In some cases, the assigned uncertainties will exceed the specified tolerances. The uncertainties, which reflect the

level of precision the State laboratories can achieve, will differ from one laboratory to another depending on standards, the competence of the metrologist, and equipment available to perform the measurement. Potential customers should contact the State weights and measures laboratory to verify that the assigned uncertainty that each State will typically provide is adequate for their needs.

Mass

Calibrations are usually performed on mass standards designed to meet specifications and tolerances in:

- American Society for Testing and Materials (ASTM) Standard E 617-91, Classes 1, 2, and 3
- NBS Circular 547, Classes J, M, S, and S-1
- International Organization of Legal Metrology Classes E₂ and F₁.

Depending on the laboratory, air buoyancy corrections may or may not be made. Customers should specify the apparent mass reference density desired for their calibration and provide the density of their mass standards.

Volume

Small glassware standards are usually calibrated gravimetrically or by volume transfer. The capacity of metal standards is typically 20 liters or 5 gallons. Some jurisdictions use 19 liter test measures, but the primary unit of measure is gallons. Metal provers larger than 5 gallons may be calibrated if appropriate standards are available.

Length

Steel tapes up to several hundred feet long may be calibrated. The uncertainties are typically a few thousandths of a foot. Rigid rules up to 12 inches long can be calibrated with uncertainties of several thousandths of an inch. Most requests for length tests have not been in metric units, though the States are capable of making these measurements.

Frequency

The frequency calibration services are usually limited to tuning forks used with police radar guns.

Temperature

Temperature calibration is generally limited to liquid-in-glass thermometers. Some States test only clinical thermometers of this type. The standards for most States are also liquid-in-glass thermometers, though some use platinum resistance thermometer standards. The uncertainties for temperature calibration will vary among laboratories. Many requests for calibrations involve tolerances specified by the customer.

Certification Requirements

Weights and Measures Laboratory Requirements

There are three general requirements for certification of State weights and measures laboratories:

- (1) The State must have adequate laboratory facilities and equipment to provide the services that are offered.
- (2) The State metrologist must: (a) successfully complete the NIST Basic Metrology Seminar; (b) maintain competency through active (annual attendance at meetings and participation in round robin experiments) participation in the Regional Measurement Management Programs (RMMPs); and (c) demonstrate the ability to perform the laboratory measurements, which may be done through the RMMPs, NIST Intermediate Metrology Seminar, or special assignments.
- (3) The metrologist must implement and maintain measurement control programs in various measurement areas as required by NIST.

The requirements for the laboratory facilities and general operation are contained in NBS Handbook 143, "State Weights and Measures Laboratories -

Program Handbook" [9]. Each laboratory is evaluated using a self-appraisal checklist (contained in Handbook 143), submitted by the metrologist, subject to verification by an on-site evaluation.

The metrologist is evaluated on the basis of performance in training seminars, the work submitted to NIST as part of the laboratory assignments, participation in technical meetings, and through review of laboratory data and test procedures during the on-site evaluation. The quality of the laboratory's measurement results are evaluated through its control charts and round robin experiments. Brief discussions of these topics follow.

Training and Evaluation

A suitable technical degree, such as Engineering, Physics, Mathematics, or Chemistry is highly recommended. Working knowledge of algebra and basic statistics is essential. It is expected that metrologists will have spent time in the laboratory familiarizing themselves with the equipment prior to attendance at a Basic Laboratory Seminar.

Basic Laboratory Training

NIST trains State metrologists in the basic laboratory metrology procedures for mass, volume, and length measurement during a 2-week Basic Laboratory Metrology seminar. The test procedures are described in NIST publications, including NBS Handbook 145, "Handbook for the Quality Assurance of Metrological Measurements" [10]. The metrologists must then complete a series of laboratory assignments and submit the data to NIST to document their understanding of the procedures and the calculations. Additional laboratory problems are assigned to each laboratory to establish measurement control programs in several measurement areas.

Intermediate and Advanced Laboratory Training

Each metrologist is expected to attend the Intermediate Metrology Seminar within 2 years of attendance at the Basic Seminar to receive additional training in the laboratory procedures and in the corrections needed for high precision measurement. Following this seminar, the metrologists are assigned a series of problems to

demonstrate their understanding of the seminar material.

States that expand into other areas of measurement are encouraged to attend specialized seminars conducted by NIST calibration laboratories. Examples of these areas are temperature and pressure measurements. The laboratories must then establish measurement control programs in these measurement areas to assure agreement with NIST results.

Regional and National Programs

Each State must have at least one metrologist participate in Regional Measurement Management Programs (RMMPs). These RMMPs are groups of laboratories in given geographical areas that have joined together to: (1) conduct meetings for the purpose of training and demonstration of procedures; and (2) to conduct round robin experiments to promote uniform measurements in their geographical area. The round robin experiments provide an essential link in the measurement traceability between NIST and the States. The knowledge exhibited by metrologists in these meetings and their results on the round robin experiments are included as part of the evaluation of the State laboratories.

In addition to training seminars and regional metrology groups, the Metrology Workshop at the annual meeting of the National Conference on Weights and Measures (NCWM) coordinates the efforts of the regional groups and provides the opportunity for metrologists to become active in weights and measures metrology issues of a national and international nature. The knowledge and participation demonstrated by the metrologists at the annual workshops as well as participation throughout the year in NCWM/NIST work projects afford metrologists the opportunity to provide technical input to the NCWM. This activity not only enhances the NCWM program and the metrologist's skills and abilities, but allows further evaluation of metrologists' special capabilities.

Measurement Control

NIST criteria require State weights and measures laboratories to utilize formal quality control techniques to ensure that their measurements are

sufficiently accurate to meet their needs on a continuing basis. If such techniques are properly employed, it is possible to quantify the uncertainties of the measurements. Monitoring them over time can assure that they remain sufficiently small to meet operational requirements. NIST has been working closely with the State weights and measures laboratories to help them enhance their laboratory programs and to demonstrate their ability to perform high-quality calibrations.

Measurement control programs have been established for mass calibration, the volume transfer testing of glass volume standards, and a number of other measurement areas, such as tolerance testing and 5-gallon gravimetric control charts. Round robin experiments are conducted to investigate the agreement of the State laboratories in all certified measurement areas.

The measurement control programs consist of two parts: (1) internal control programs; and (2) external control programs.

Internal Control Programs

The internal measurement control programs generally consist of repeated measurements on the same objects over an extended period of time. The data are then plotted on control charts to establish the limits of random errors in the measurement processes. Repeated measurements made on the standards themselves monitor the standards as well as the variability of the measurement process. Statistical confidence tests monitor the stability of the standards and the variance of the measurement process. The control chart data can be used to document the validity of the measurements made on a given day. Finally, the control chart data are used to determine if the standards agree with NIST-reported values. Disagreement with NIST-reported values requires corrective action. If a problem persists, the standards must be recalibrated at NIST.

In some measurement areas it is not possible to keep a standard or standards in the laboratory simply for the purpose of measurement control. For example, it is impractical to keep an extra 100-gallon prover in the laboratory to run as a check standard during every 100-gallon prover test. In these instances, repeated measurements are run on each standard submitted for test. Differences in

test results are then plotted on a "range" chart. The process variance is estimated from the range in the measurements made on many standards. The range chart is also used to verify that repeated measurements made on a given standard fall within the indicated limits.

In some instances, such as the volume transfer testing of glass flasks, a combination of control and range charts is used. The type of measurement control program depends on the criticality of the measurements, the availability of standards to use as "check" standard, and the tolerances for the standards under test. The frequency of measurements made to control the measurement process and the type of control program utilized are tailored to the measurement area under investigation.

External Control Programs

The NIST goal is to provide an external measurement control system that is available to all States. The overall goal is for each State to actively participate in one of the five Regional Measurement Management Programs (RMMPs). The RMMPs promote uniform measurement results by:

- (1) providing training through the presentation of papers prepared by members;
- (2) demonstrating test procedures to assure uniformity;
- (3) conducting round robin experiments to investigate the presence of measurement errors; and
- (4) addressing mutual measurement concerns.

The RMMPs are groups of State and, to a limited extent, private laboratories that have joined together to conduct meetings and perform round robin tests in mass, length, volume, and to a limited extent other measurement areas such as grain moisture, thermometry, and tuning fork testing, to promote uniformity in test procedures and measurement results. The five RMMPs listed below provide the opportunity for all States, the District of Columbia, Puerto Rico, and the Virgin Islands to participate. A map of the regional groups is shown in figure 1.

- (1) Northeastern Measurement Assurance Program (NEMAP)

- (2) Southeastern Measurement Assurance Program (SEMAP)
- (3) Western Regional Assurance Program (WRAP)
- (4) Mid-America Measurement Assurance Program (MidMAP)
- (5) Southwestern Assurance Program (SWAP)

In the external measurement control programs, standards external to the laboratory are submitted to the laboratory for test. These external standards are normally calibrated by NIST (or FGIS in the case of grain moisture) to provide a reference value. These standards are usually circulated as part of round robin experiments conducted and coordinated by the RMMPs. Although NIST provides values for the circulating standards, the round robin experiments are developed, coordinated, and analyzed by the RMMPs. NIST participates in the data analysis and the regional meetings to identify any problems and to provide training to eliminate discrepancies. This information is vital to the NIST certification program. The RMMPs are thus an integral part of the NIST certification program and reduce the amount of NIST effort necessary to monitor State laboratories.

The external measurement control programs are used to compare the RMMP results to NIST or other national standard values. These programs investigate the presence of systematic errors and can be used to test the variance of the measurement processes. Plots of interlaboratory data results are frequently used to analyze data. To obtain maximum benefits from these external measurement control programs, internal measurement control programs should be established before a laboratory participates in round robin experiments.

Uniformity among RMMPs is attained through additional NIST training at the meetings, the calibration of standards by NIST used in round robin experiments, and the evaluation of the round robin results. The RMMPs interact further through the Metrology Workshop held in conjunction with the Annual Meeting of the National Conference on Weights and Measures. Members of each RMMP report activities and round robin results and discuss ways of improving the quality of the laboratories as well as individual proficiency.

National Type Evaluation Program

NIST will authorize qualified State and other laboratories to: (1) conduct complete testing and evaluation; or (2) conduct field performance testing of specified types of devices under the NTEP. Type evaluations are primarily conducted on scales, weighing systems, meters, metering systems, and devices associated with these applications. The specific types of devices that a Participating Laboratory is authorized to evaluate are identified in the directory.

National Type Evaluation Program Requirements

The objectives of the authorization plan of the National Type Evaluation Program are to:

- (1) promulgate uniform criteria and procedures for testing laboratories;
- (2) authorize those qualifying as "Participating Laboratories" in the Program;
- (3) assure the uniform application of NTEP device evaluation criteria; and
- (4) provide the basis for acceptance by the States and Federal agencies of the evaluations conducted in the authorized Participating Laboratories.

To be authorized, laboratories must demonstrate that they have the staff, equipment, and resources to conduct the evaluations. The ability to conduct type evaluations is heavily dependent on the people who do the evaluations. They must have knowledge of Handbook 44 requirements, device applications, and test procedures. They must also have the analytical skills and judgment to determine whether the requirements are satisfied.

Because the nature of type evaluations is very different from laboratory metrology, staff other than the laboratory metrologist are often authorized to conduct type evaluations for NTEP.

Type evaluations may include both laboratory and field tests. A State must have the specialized equipment required to test a device over a temperature range (i.e., an environmental chamber along with other specialized equipment). Field evaluations require much of the same equipment

used in weights and measures enforcement testing, but the test procedures are much more extensive. NIST provides extensive training on the NTEP criteria, test procedures, and the rationale behind the requirements. The laboratory staff must demonstrate a thorough knowledge of the criteria and test procedures, the ability to properly analyze the test data and device performance as it pertains to the device applications, and demonstrate the ability to make judgments consistent with NTEP policy. Regular communication with NIST regarding new device features and evaluation criteria is required to maintain uniformity among the NTEP laboratories.

Unevaluated Measurement Areas

In addition to the certified measurement areas of tolerance testing, calibration, and device type evaluations, many laboratories perform measurements for which the NIST Office of Weights and Measures has not established guidelines for certification. These measurement areas can include the testing of dial gauges used to test polyethylene sheeting (an extension of dimensional measurements) or entire programs such as grain moisture testing and petroleum quality testing. This publication contains new information regarding proposed program and certification requirements for grain moisture and petroleum quality programs. The directory in Part II also includes information regarding the services available in these areas.

Proposed Grain Moisture Laboratory Program and Certification Requirements

The objectives of developing a Grain Moisture Laboratory Certification Program are to promote uniformity in grain moisture testing and provide a certification program for State (government) Grain Moisture laboratories.

General requirements for certification of Grain Moisture Laboratories will be developed by consensus between participants from State government, the Federal Grain Inspection Service (FGIS) of the U.S. Department of Agriculture, the National Conference on Weights and Measures (NCWM), and the NIST Office of Weights and Measures. The Program will follow the same

certification/authorization steps as the certification of State weights and measures laboratories and the authorization of Participating laboratories for type evaluation of devices that is described in NBS Handbook 143.

There will be three general requirements for certification of State grain moisture laboratories:

- (1) The laboratory must be organized and staffed in such a way as to ensure efficient execution of its responsibilities.
- (2) The laboratory must have an acceptable facility, appropriate equipment and standards, and trained laboratory staff. The laboratory facilities, equipment and standards, and staff will be described in Handbook 143, Laboratory Program Handbook, and evaluated in a self-appraisal checklist (similar to the Appendix C in that handbook, for weights and measures laboratories). As with the other programs, certification is subject to a NIST, FGIS, or other external evaluation.
- (3) In addition to the recommended minimum guidelines for facilities, equipment and standards, and staff, the laboratory must have in place, and follow, an appropriate Measurement Control or Quality Control Program.

The laboratory must have a formal, written system description, measurement control, or quality control document that addresses the following certification requirements:

- (1) Tests must be performed according to nationally recognized (FGIS) specifications.
- (2) Documented and recognized test procedures (FGIS), and appropriate test equipment must be used.

Laboratory staff will typically have specialized professional training, and experience in Grain Moisture Testing that is very different from laboratory metrology. No formal training program is in place at NIST at this time and qualifications have not been established. However, staff will be subject to competency testing.

As part of the competency testing, the laboratory must participate in official round robin measurements (FGIS, NIST) to verify acceptable and consistent test results.

Proposed Petroleum Quality Laboratory Program and Certification Requirements

The objectives of developing a petroleum quality certification program are to promote uniformity in petroleum quality testing and provide a certification program for State (government) Petroleum Quality laboratories.

General requirements for Petroleum Quality Laboratories will be developed by consensus between participants from State government agencies, the petroleum industry, the National Conference on Weights and Measures (NCWM), the American Society for Testing and Materials (ASTM), and the NIST Office of Weights and Measures recommendations. It will follow the same certification/authorization steps as the certification of State weights and measures laboratories and the authorization of Participating Laboratories for type evaluation of devices, as those described in NBS Handbook 143.

There will be three general requirements for certification of State petroleum quality laboratories:

- (1) The laboratory must be organized and staffed in such a way as to ensure efficient execution of its responsibilities.
- (2) The laboratory must have an acceptable facility, appropriate equipment and standards and trained laboratory staff. The laboratory facilities, equipment and standards, and staff will be described in Handbook 143, Laboratory Program Handbook, and evaluated in a self-appraisal checklist (similar to that in Appendix C for weights and measures laboratories). As with the other programs, certification is subject to a NIST or other external evaluation.
- (3) In addition to the recommended minimum guidelines for facilities, equipment and standards, and staff, the laboratory must

have in place, and follow, an appropriate Measurement Control or Quality Control Program.

A formal and written system description, measurement control, or quality control document must be in place that addresses the following certification requirements:

- (1) Tests must be performed according to nationally recognized (ASTM, API, EPA) specifications.
- (2) Documented and recognized test procedures (usually ASTM petroleum test methods), and appropriate test equipment must be used.

Laboratory staff will typically have professional training, education, and experience in Petroleum Quality Testing, that is very different from laboratory metrology. No formal training programs are in place at NIST at this time and qualifications have not been established. However, under this program, staff will be subject to competency testing.

As part of the competency testing, the laboratory must participate in official round robin measurements (ASTM or regional) to verify acceptable and consistent test results.

Summary

In order to be certified in a particular measurement area, each State must have a trained metrologist and an adequate facility, and must demonstrate on a continuing basis that it is capable of providing valid measurements. Certification by NIST indicates that the laboratory is capable of providing a measurement service, but each State must verify its own measurement traceability.

The directory of laboratories in Part II summarizes the certified areas of measurement that each State is qualified to perform and provides detailed information to assist industry and government agencies in locating laboratories that provide needed measurement services. The directory also includes listings for some measurement areas for which certification is not currently available.

- (1) Northeastern Measurement Assurance Program (NEMAP)
- (2) Southeastern Measurement Assurance Program (SEMAP)
- (3) Western Regional Assurance Program (WRAP)
- (4) Mid-America Measurement Assurance Program (MidMAP)
- (5) Southwestern Assurance Program (SWAP)

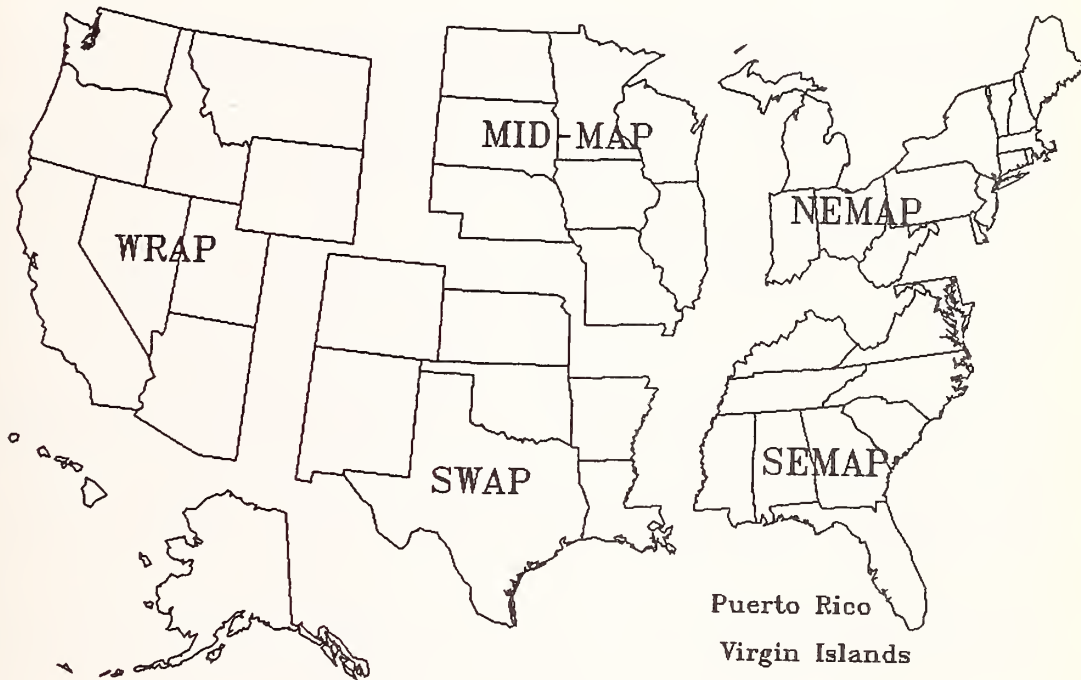


Figure 1. Regional Measurement Management Programs (RMMPs, see p. 5).

References

- [1] Oppermann, H. V., editor; Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices; NIST Handbook 44, 1992.
- [2] NIST Handbook 105-1 (Revised 1990), Specifications and Tolerances for Reference Standards and Field Standard Weights and Measures. 1. Specifications and Tolerances for Field Standard Weights (NIST Class F).
- [3] ASTM (American Society for Testing and Materials) E 617-91, Standard Specification for Laboratory Weights and Precision Mass Standards, ASTM, Philadelphia, PA 19103.
- [4] NBS Circular 547, Section 1, Precision Laboratory Standards of Mass and Laboratory Weights, 1954, out of print.
- [5] NBS Circular 3, Design and Test of Standards of Mass, out of print.
- [6] OIML (International Organization of Legal Metrology), International Recommendation Numbers 1, 2, 20, 25, 47, 52.
- [7] NBS Handbook 105-2 (Revised 1971), Specifications and Tolerances for Reference Standards and Field Standard Weights and Measures. 2. Specifications and Tolerances for Field Standard Measuring Flask.
- [8] NBS Handbook 105-3 (Revised 1979), Specifications and Tolerances for Reference Standards and Field Standard Weights and Measures. 3. Specifications and Tolerances for Graduated Neck Type Volumetric Field Standards.
- [9] Oppermann, H. V., Taylor, J. K., State Weights and Measures Laboratories, Program Handbook, NBS/HB 143 (1985).
- [10] Taylor, J. K., Oppermann, H. V., Handbook for the Quality Assurance of Metrological Measurements, NBS/HB 145 (1986).

PART II - Laboratory Directory

Summary of Measurement Services and Programs

A table summarizing the available services is provided.

Alphabetical Index

The following information is given for each State or certified laboratory (in alphabetical order):

- (1) the certification period, if certified by NIST;
- (2) the laboratory staff member(s), address, and phone number;
- (3) services available; and
- (4) fees, if any, for services.

Summary of Measurement Services and Programs

	Tolerance Testing				Calibration								NTEP	Grain Moisture Program	Petroleum Program	Registered Service Agents
	Mass		Volume		Mass	Volume			Length		Freq	Temp				
	Mass		Volume			Volume			Length							
	≤ 1000 lb	> 1000 lb	small ≤ 25 gal	intm 25 ≤ 500 gal		large > 500 gal	≤ 3 kg	> 3 kg	glass	metal						
Nebraska	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓			✓
Nevada	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓
New Hampshire																✓
New Jersey	✓		✓	✓	✓	✓	✓	✓	✓	✓			✓			✓
New Mexico	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓		✓	✓
New York	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓	
North Carolina	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓		✓	
North Dakota	✓	✓	✓	✓	✓										✓	✓
Ohio	✓	✓	✓	✓		✓	✓	✓	✓	✓						✓
Oklahoma	✓	✓		✓		✓	✓	✓	✓	✓				✓	✓	✓
Oregon	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	
Pennsylvania	✓	✓	✓	✓		✓	✓	✓	✓	✓			✓			
Puerto Rico	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	
Rhode Island	✓		✓												✓	
South Carolina	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓
South Dakota	✓		✓													✓
Tennessee	✓		✓											✓	✓	✓
Texas	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						✓
Utah	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓
Vermont	✓		✓	✓		✓	✓	✓	✓	✓						✓
Virginia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓
Virgin Islands																
Washington	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						
West Virginia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						
Wisconsin	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓
Wyoming	✓	✓	✓	✓	✓											✓
USDA FGIS	✓	✓				✓							✓			

Alabama

Certification Period: 1992-1994

Laboratory Staff	Address	Telephone Number
John B. Rabb, Metrologist John W. Campbell, Metrologist Terry Snow, Metrologist	Division of Weights & Measures PO Box 3336 Montgomery, AL 36109-0336	(205) 242-2652 FAX: (205) 240-3135

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
Labor...\$25 per hour. Registered service agents and parent organization are exempt from fees.

Alabama

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Division of Agricultural Chemistry Department of Agriculture & Industries PO Box 3336 Montgomery, AL 36109-0336	(205) 242-2639
Person responsible for program	Lance Hester
Contact for additional information	Vaughn Johnson
Additional certification/recognition	

National Type Evaluation Program (NTEP)	
Address	Telephone Number
Division of Weights & Measures PO Box 3336 Montgomery, AL 36109-0336	(205) 242-2614
Person responsible for program	Don E. Stagg
Contact for additional information	John B. Rabb
Additional certification/recognition	NIST Authorized Laboratory
NTEP performance testing of vehicle, axel-load, livestock, and floor scales.	

Alaska

Certification Period: 1991-1993

Laboratory Staff	Address	Telephone Number
Darrel E. Cavender, Metrologist	Dept of Comm & Economic Dev Measurement Standards 12050 Industry Way, Bldg "O" Anchorage, AK 99515 PO Box 111686 Anchorage, AK 99511	(907) 345-7750 FAX: (907) 345-2641

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	N	Mass	Weight \leq 3 kg	N
	Weight > 1000 lb	N		Weight > 3 kg	N
Volume	Small \leq 25 gal	N	Volume	Metal Standards	N
	Intermediate 25 - 500 gal	N		Small Glassware	N
	Large > 500 gal	N			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	N
				Rigid Rules	N
			Frequency	Tuning Forks	N
			Temperature	Liquid in Glass Thermometry	X

Fees
No fees are charged.

Alaska

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
12050 Industry Way Anchorage, AK 99515	(907) 345-7750
Person responsible for program	Darrel E. Cavender
Contact for additional information	
Additional certification/recognition	Watthour meter testing

Arizona

Certification Period: 1992

Laboratory Staff	Address	Telephone Number
Kelleen K. Moody, Metrologist Anthony DeArcos, Metrological Tech	Dept of Weights and Measures 1951 West North Lane Phoenix, AZ 85021	(602) 255-5211 FAX: (602) 255-1950

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	X			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
Contact laboratory directly for fee information.

Arizona

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
1951 West North Lane Phoenix, AZ 85021	(602) 255-5211
Person responsible for program	Ray Helmick
Contact for additional information	Jim Webbert
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
1951 West North Lane Phoenix, AX 85021	(602) 255-5211
Person responsible for program	Ray Helmick
Contact for additional information	Kelleen K. Moody
Additional certification/recognition	

Arkansas

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
Bill W. Sullivant, Laboratory Supervisor Charles Kirspel, Jr., Metrologist Randall W. Burns, Metrologist & Grain	Arkansas Bureau of Standards 4608 West 61st St Little Rock, AR 72209	(501) 324-9680 FAX: (501) 562-7605

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	N	Mass	Weight \leq 3 kg	N
	Weight > 1000 lb	N		Weight > 3 kg	N
Volume	Small \leq 25 gal	N	Volume	Metal Standards	N
	Intermediate 25 - 500 gal	N		Small Glassware	N
	Large > 500 gal	N			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	N
				Rigid Rules	N
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
No fees are charged.

Arkansas

Grain Moisture Testing	
Address	Telephone Number
Arkansas Bureau of Standards 4608 West 61st Street Little Rock, AR 72209	(501) 324-9680 FAX: (501) 562-7605
Person responsible for program	Bill W. Sullivant
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Arkansas Bureau of Standards 4608 West 61st Street Little Rock, AR 72209	(501) 324-9680 FAX: (501) 562-7605
Person responsible for program	David O. Karlish
Contact for additional information	
Additional certification/recognition	ASTM D-2, Chemist, CDL

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

California

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
Joseph Rothleder, State Metrologist Thomas S. Fletcher, Msmt Stds Specialist III Walter Camozzi, Msmt Stds Specialist II	Division of Measurement Standards Dept of Food and Agriculture 8500 Fruitridge Rd Sacramento, CA 95826	(916) 366-5119 FAX: (916) 366-5179

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	F

Fees
Labor...\$60 per hour, for Metrology Laboratory only. For testing services beyond Metrology Laboratory, contact persons listed

California

National Type Evaluation Program (NTEP)	
Address	Telephone Number
Division of Measurement Standards 8500 Fruitridge Road Sacramento, CA 95826	(916) 366-5119
Person responsible for program	Steve Cook
Contact for additional information	Jim Tollefson
Additional certification/recognition	NIST Authorized Laboratory
NTEP testing of commercial scales, mass flow meters, taximeters, electronic cash registers interfaced with scales and retail motor	

Commercial Measuring Device Testing (non-NTEP)	
Address	Telephone Number
Division of Measurement Standards 8500 Fruitridge Road Sacramento, CA 95826	(916) 366-5119
Person responsible for program	Ken Lake
Contact for additional information	Jim Tollefson
Additional certification/recognition	
<p>Meters: petroleum (retail, vehicle, and wholesale), watthour, cordage, wire, taxi, water, vapor, liquid, liquified gas, cryogenic gas</p> <p>Scales: computing, crane, platform, hopper, tank, livestock, prescription, jeweler, railway track, vehicle</p> <p>Other: timers, vapor recovery systems, weighing systems</p>	

California

Grain Moisture Testing	
Address	Telephone Number
Division of Measurement Standards 8500 Fruitridge Road Sacramento, CA 95826	(916) 366-5119
Person responsible for program	Ken Lake
Contact for additional information	Walter Camozzi
Additional certification/recognition	Participation in round robin experiments

Petroleum Quality Testing	
Address	Telephone Number
Division of Measurement Standards 8500 Fruitridge Road Sacramento, CA 95826	(916) 366-5119
Person responsible for program	Floyd Worcester
Contact for additional information	Al Hebert
Additional certification/recognition	Round robins, Pacific Coast Sample Exchange Program

Radiation Instrument Calibration	
Address	Telephone Number
Office of Emergency Services 2800 Meadowview Road Sacramento, CA 95832	(916) 427-4240
Person responsible for program	John Anderson
Contact for additional information	Detmar Schroeder
Additional certification/recognition	Accreditation by the Conference of Radiation Control Program Directors and participates in proficiency tests conducted by NIST.

Colorado

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
Jerry S. Wagner, Chief Metrologist William L. Young, Metrologist	Colorado Dept of Agriculture Measurement Standards Metrology Laboratory 3125 Wyandot St Denver, CO 80211	(303) 866-2845 FAX: (303) 480-9236

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	F
			Temperature	Liquid in Glass Thermometry	X

Fees
Labor...\$20 per hour.

Remarks:

Laboratory has been involved with the development of procedures to evaluate laser radar guns and the development of procedures for testing tuning forks.

Colorado

Grain Moisture Testing	
Address	Telephone Number
Colorado Department of Agriculture Measurement Standards Section 3125 Wyandot Street Denver, CO 80211-3824	(303) 866-2845
Person responsible for program	William L. Young
Contact for additional information	Richard K. Miller
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Colorado Department of Labor and Employment Oil Inspection Section 1001 East 62nd Ave, Bldg 1 Denver, CO 80216-1140	(303) 289-5643
Person responsible for program	Michael J. Powell
Contact for additional information	Helen L. Struck
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
CO Department of Agriculture Measurement Standards Section 3125 Wyandot Street Denver, CO 80211-3824	(303) 866-2845
Person responsible for program	Jerry S. Wagner
Contact for additional information	William L. Young
Additional certification/recognition	

Connecticut

Certification Period: 1991-1993

Laboratory Staff	Address	Telephone Number
Michael J. Dynia, Metrologist	Weights and Measures Division Dept of Consumer Protection State Office Bldg Room G17 Hartford, CT 06106	(203) 566-5230 Office (203) 566-4778 Lab FAX: (203) 566-7630

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb	X		Weight > 3 kg	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	X		Small Glassware	F
	Large > 500 gal	X			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	F

Fees
Labor...\$60 per hour. Minimum charge \$60. Certificate of Traceability: \$25 No fees charged pursuant to CT General Statutes, Section 43-50. Tolerance testing rates: 50 lb (25 kg) to 1000 lb (500 kg) \$20 each 2 lb (1 kg) to 50 lb (20 kg) \$10 each less than 2 lb (1 kg) \$.25 each 10 to 32 lb weight kits (<26 pieces) \$75 per kit Other weight kits (<16 pieces) \$55 per kit

Remarks:

Laboratory tests clinical thermometers.

Connecticut

Grain Moisture Testing	
Address	Telephone Number
Department of Agriculture Rm 287, 165 Capitol Avenue Hartford, CT 06106	(203) 566-5268
Person responsible for program	Al VanDyke
Contact for additional information	
Additional certification/recognition	specific testing of corn moisture

Petroleum Quality Testing	
Address	Telephone Number
Department of Consumer Protection Rm G-17, 165 Capitol Avenue Hartford, CT 06106	(203) 566-5230
Person responsible for program	Allan M. Nelson
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Delaware

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
David L. Baird, Metrologist	DE Dept of Agriculture Weights and Measures Section 2320 S. DuPont Hwy Dover, DE 19901	(302) 739-4811 X232 FAX: (302) 697-6287

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	N	Mass	Weight \leq 3 kg	N
	Weight > 1000 lb	N		Weight > 3 kg	N
Volume	Small \leq 25 gal	N	Volume	Metal Standards	N
	Intermediate 25 - 500 gal	N		Small Glassware	N
	Large > 500 gal	N			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	N
				Rigid Rules	N
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
No fees are charged

Remarks:

Delaware moved into a new laboratory January, 1990, and uses an environmental chamber for precision mass measurements.

Delaware

Grain Moisture Testing	
Address	Telephone Number
Delaware Department of Agriculture 2320 S. DuPont Hwy Dover, DE 19901	(302) 739-4811 x232
Person responsible for program	David L. Baird
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Division of Motor Fuel Tax PO Drawer F Dover, DE 19903	(302) 739-4538 FAX: (302) 739-6299
Person responsible for program	Dale A. Shuirman
Contact for additional information	
Additional certification/recognition	work being done by the State of Maryland

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

District of Columbia

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
vacant, Chief/Metrologist Jeffrey X. Mason, Inspector Leon Weston, Inspector	Weights, Measures, & Markets Branch 614 "H" St NW Washington, DC 20001 1110 "U" St SE Wash, DC 20020	(202) 767-7923

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	X
	Intermediate 25 - 500 gal	X		Small Glassware	X
	Large > 500 gal	X			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	X
				Rigid Rules	X
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
Labor...\$15 per hour.

District of Columbia

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Florida

Certification Period: 1992-1994

Laboratory Staff	Address	Telephone Number
Edward T. Koeppen, Senior Metrologist Michael D. Cook, Metrologist Barry E. Smith, Metrologist Charles E. Barnes, Lab Technician Carlos D'Arcy, Metrologist, Fort Laud.	Department of Agriculture and Consumer Services 3125 Conner Blvd, Bldg 2 Tallahassee, FL 32399-1650	(904) 488-9295

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	N	Mass	Weight \leq 3 kg	N
	Weight > 1000 lb	N		Weight > 3 kg	N
Volume	Small \leq 25 gal	N	Volume	Metal Standards	N
	Intermediate 25 - 500 gal	N		Small Glassware	N
	Large > 500 gal	N			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	N
				Rigid Rules	N
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	N

Fees
No fees are charged.

Florida

Grain Moisture Testing	
Address	Telephone Number
Weights and Measures Laboratory Bldg #2 3125 Conner Blvd Tallahassee, FL 32399-1650	(904) 488-9295
Person responsible for program	Edward T. Koeppen
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Petroleum Inspection Bldg #1 3125 Conner Blvd Tallahassee, FL 32399-1650	(904) 488-9740
Person responsible for program	John C. Whitton
Contact for additional information	Eric Hamilton
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Georgia

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
Martin T. Coile, State Metrologist Brenda J. Whitener, Asst State Metrologist Festus Edoimioya, Metrologist II Valentino Bradford, Metrologist I Marty Reid, Metrologist I	Weights and Measures Lab 16 Forest Pkwy Forest Park, GA 30050	(404) 363-7685 X88 FAX: (404) 656-9380

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	N	Mass	Weight \leq 3 kg	N
	Weight > 1000 lb	N		Weight > 3 kg	N
Volume	Small \leq 25 gal	N	Volume	Metal Standards	N
	Intermediate 25 - 500 gal	N		Small Glassware	N
	Large > 500 gal	X			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	N
				Rigid Rules	N
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	O

Fees
No fees are charged.

Remarks:

The Georgia laboratory maintains computerized control charts for all weights used in mass calibrations as part of the measurement control program, and has independent laboratory rooms, balances, and standards for calibration and tolerance testing of mass.

Georgia

Grain Moisture Testing	
Address	Telephone Number
Weights and Measures Laboratory 16 Forest Pkwy Forest Park, GA 30050	(404) 363-7685
Person responsible for program	Martin T. Coile
Contact for additional information	Brenda J. Whitener
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
State Fuel Oil Laboratory 5235 Kennedy Rd Forest Park, GA 30050	(404) 363-7597
Person responsible for program	Curtis Williams
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Hawaii

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
Lester Yazawa, Chief Metrologist Donna Kadooka, Metrologist	HI Dept of Agriculture Msmt Standards Division 725 Ilalo St Honolulu, HI 96813-5524	(808) 586-0886 FAX: (808) 548-7269

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
Fees are established by rule and vary according to type of artifact and type of service requested. Service repair agencies registered with the state are exempt from fees.

Hawaii

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Measurement Standards Division 725 Ilalo St Honolulu, HI 96813	(808) 586-0886
Person responsible for program	Lester Yazawa
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Idaho

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
Tom W. Schafer, Metrologist	Dept of Agriculture Bureau of Weights and Measures 2216 Kellogg Lane Boise, ID 83702	(208) 334-2345 FAX: (208) 334-2170

Services Available					
Tolerance Testing			Calibration		
Mass	Weight ≤ 1000 lb	N	Mass	Weight ≤ 3 kg	N
	Weight > 1000 lb	N		Weight > 3 kg	N
Volume	Small ≤ 25 gal	N	Volume	Metal Standards	N
	Intermediate 25 - 500 gal	N		Small Glassware	N
	Large > 500 gal	N			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	N
				Rigid Rules	N
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
No fees are charged.

Idaho

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Illinois

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
Stephen E. McGuire, Metrologist Mike Rockford, Metrologist Associate J. R. Onken, Metrologist Associate	IL Dept of Agriculture Division of Consumer Services Bureau of Weights and Measures Standards Laboratories State Fairgrounds, Box 19281 Springfield, IL 62794-9281	(217) 785-8480 or 8530 FAX: (217) 524-6194 Toll-Free (Illinois) 1-800-582-0468

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
Labor...\$25 per hour, tolerance testing. \$40 per hour for calibrations in mass, length, and volume.

Remarks:

The Illinois laboratory has a documented Quality Assurance Program to assure compliance with Mil-Std-45662A audits, and maintains ongoing control charts for all calibrations.

Illinois

Grain Moisture Testing	
Address	Telephone Number
IL Dept of Agriculture Division of Consumer Services Bureau of Weights and Measures State Fairgrounds, Box 19281 Springfield, IL 62794-9281	(217) 785-8482
Person responsible for program	Ron Berg
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
IL Dept of Agriculture Division of Consumer Services Bureau of Weights and Measures State Fairgrounds, Box 19281 Springfield, IL 62794-9281	(217) 785-8213
Person responsible for program	Rich Philmon
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
IL Dept of Agriculture Division of Consumer Services Bureau of Weights and Measures State Fairgrounds, Box 19281 Springfield, IL 62794-9281	(217) 782-3817
Person responsible for program	Jerry Robertson
Contact for additional information	
Additional certification/recognition	Egg Inspection Program

Indiana

Certification Period: 1992

Laboratory Staff	Address	Telephone Number
Peter W. Boykin, Metrologist	Indiana State Board of Health Division of Weights and Measures 1330 W Michigan St Indianapolis, IN 46206	(317) 633-0350 (Office) (317) 633-0789 (Lab) FAX: (317) 633-0776

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	N	Mass	Weight \leq 3 kg	N
	Weight > 1000 lb	N		Weight > 3 kg	N
Volume	Small \leq 25 gal	N	Volume	Metal Standards	N
	Intermediate 25 - 500 gal	N		Small Glassware	N
	Large > 500 gal	X			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	N
				Rigid Rules	N
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
No fees are charged.

Indiana

Grain Moisture Testing	
Address	Telephone Number
Commission on Agriculture	(317) 232-1356
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Indiana State Board of Health Division of Weights and Measures 1330 W Michigan St Indianapolis, IN 46206	(317) 633-0350
Person responsible for program	Sharon Rhoades
Contact for additional information	
Additional certification/recognition	contracting tests

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Iowa

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
Robert E. Hollis, Metrologist Thomas Matthews, Laboratory Asst 3	IA Dept of Agriculture Weights and Measures Division Henry Wallace Bldg Des Moines, IA 50319	(515) 281-5716 FAX: (515) 281-6800

Services Available					
Tolerance Testing			Calibration		
Mass	Weight ≤ 1000 lb	F	Mass	Weight ≤ 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small ≤ 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
<p>Mass calibration, refined fuel and LPG prover calibration \$10 per hour; one hour minimum charge.</p> <p>Tolerance testing mass: \leq 5 lb: \$2; 5 lb < W \leq 50 lb: \$5; 50 lb < W \leq 100 lb: \$8; 100 lb < W \leq 500 lb: \$10; 500 lb < W \leq 1000: \$15 1000 lb < W \leq 2500 lb: \$25; Weight kits with 10 or more weights: \$30 per kit.</p> <p>Volume measures: Laboratory glassware: \$10; Metal, 1 gal - 5 gal: \$10; Metal, 5 gal - 10 gal: \$15; Metal, 10 gal - 20 gal: \$20.</p> <p>Linear measures: Rigid rulers: \$20; Steel and Fabric measuring tapes: \$.10/ft for first 10 feet, \$.50/ft for each 10 ft interval thereafter.</p>

Iowa

Grain Moisture Testing	
Address	Telephone Number
IA Dept of Agriculture Weights and Measures Division Henry Wallace Bldg Des Moines, IA 50319	(515) 281-5716
Person responsible for program	Jerry L. Bane, Bureau Chief
Contact for additional information	Thomas Matthews, Laboratory Asst 3
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
IA Dept of Agriculture Weights and Measures Division Henry Wallace Bldg Des Moines, IA 50319	(515) 281-5716
Person responsible for program	Jerry L. Bane, Bureau Chief
Contact for additional information	Robert E. Hollis, Metrologist
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
IA Dept of Agriculture Weights and Measures Division Henry Wallace Bldg Des Moines, IA 50319	(515) 281-5716
Person responsible for program	Jerry L. Bane, Bureau Chief
Contact for additional information	Robert E. Hollis, Metrologist
Additional certification/recognition	

Kansas

Certification Period: 1991-1993

Laboratory Staff	Address	Telephone Number
Karl A. Herken, State Metrologist Carl W. Gile, Metrologist	Kansas State Board Weights and Measures Lab 2016 SW 37th St Topeka, KS 66611-2570	(913) 267-0278

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
Labor...\$30 per hour. 1/2 hour minimum.

Remarks:

The Kansas laboratory maintains computerized control charts for all weights used in mass calibrations as part of the measurement control program.

Kansas

Grain Moisture Testing	
Address	Telephone Number
Kansas Grain Inspection 700 Jackson, Suite 800 Box 1918 Topeka, KS 66601	(913) 296-3451
Person responsible for program	Gary Bothwell
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Kansas Weights and Measures 2016 SW 37th St Topeka, KS 66611-2570	(913) 267-4641
Person responsible for program	DeVern H. Phillips
Contact for additional information	Lewis J. Hutfles
Additional certification/recognition	

National Type Evaluation Program (NTEP)	
Address	Telephone Number
Kansas Weights and Measures 2016 SW 37th St Topeka, KS 66611-2570	(913) 267-4641
Person responsible for program	
Contact for additional information	
Additional certification/recognition	NIST Authorized Participating Laboratory
NTEP performance testing of vehicle, axle-load, livestock, and floor scales.	

Kentucky

Certification Period: 1992-1994

Laboratory Staff	Address	Telephone Number
Michael L. Worthington, Metrologist Randall Wise, Program Coordinator	Division of Weights and Measures 106 W 2nd St Frankfort, KY 40601	(502) 564-4870 FAX: (502) 564-5669

Services Available					
Tolerance Testing			Calibration		
Mass	Weight ≤ 1000 lb	N	Mass	Weight ≤ 3 kg	X
	Weight > 1000 lb	X		Weight > 3 kg	X
Volume	Small ≤ 25 gal	N	Volume	Metal Standards	X
	Intermediate 25 - 500 gal	N		Small Glassware	X
	Large > 500 gal	N			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	X
				Rigid Rules	X
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
No fees are charged.

Kentucky

Grain Moisture Testing	
Address	Telephone Number
Division of Weights and Measures 106 W 2nd St Frankfort, KY 40601	(502) 564-4870
Person responsible for program	Randall Wise
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Louisiana

Certification Period: 1992-1994

Laboratory Staff	Address	Telephone Number
Pat Chaney, Metrologist	LA Dept of Agriculture and Forestry Metrology Laboratory PO Box 3098 Baton Rouge, LA 70821-3098 Shipping: 5825 Florida Blvd Baton Rouge, LA 70806	(504) 925-3780 Office (504) 922-1380 Lab FAX: (504) 922-1289

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	X		Small Glassware	F
	Large > 500 gal	X			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
Labor... Length and Volume: \$25 per hour. Minimum one hour charge. Mass - Tolerance Testing: W \leq 10 lb: \$2; W \leq 100 lb: \$5; W \leq 1000 lb: \$25; W > 1000 lb: \$50; Mass - Calibration: W \leq 3 kg: \$25; W \leq 30 kg: \$50; W > 30 kg: \$75

Remarks:

Louisiana moved into a new laboratory in 1989.

Louisiana

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Maine

Certification Period: 1991-1993

Laboratory Staff	Address	Telephone Number
Stanley K. Millay, Metrology Supervisor Danny Newcombe, Metrologist	ME Dept of Agriculture Division of Regulations Station 28 Augusta, ME 04333	(207) 289-3841 FAX: (207) 289-7161

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb	X		Weight > 3 kg	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	F
			Temperature	Liquid in Glass Thermometry	X

Fees
Labor...\$40 per hour.

Remarks:

Maine has an indoor, drive-through, truck compartment volume calibration facility. Maine also provides tolerance testing of stopwatches and calibration of Sardine Carrier holds.

Maine

Grain Moisture Testing	
Address	Telephone Number
ME Dept of Agriculture Division of Regulations Station 28 Augusta, ME 04333	(207) 289-7550
Person responsible for program	Reginal Andrews
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
ME Dept of Agriculture Division of Regulations Station 28 Augusta, ME 04333	(207) 289-3841
Person responsible for program	Stanley Millay
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Maryland

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
Charles R. Stockman, Lab Program Manager	MD Dept of Agriculture 50 Harry S Truman Pkwy Annapolis, MD 21401	(410) 841-5790
Steve Barry, Metrology Technician		FAX: (410) 841-2765
Victor P. DeLibera, Metrology Technician		
Gloria Diane Lee/London, Metrology Technician		

Services Available

Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb (up to 20,000 lb)	F		Weight > 3 kg (up to 20,000 lb)	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	F

Fees

Labor...\$45 per hour. Contact laboratory for additional capabilities and fee schedule.

Refurbishing of measures/standards is available. Contact laboratory for specifics.

Remarks:

Maryland moved into a new laboratory in August, 1990. Laboratory tests stopwatches and also dial gauges which are used to test polyethylene sheeting, glassware used for Babcock tests of milk, vapor meters, and slow-flow meters.

Maryland

Grain Moisture Testing	
Address	Telephone Number
MD Dept of Agriculture 50 Harry S Truman Pkwy Annapolis, MD 21401	(410) 841-5790
Person responsible for program	Gloria Diane Lee/London
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
State of Maryland Motor Fuel Testing Laboratory 7101 Jessup Rd Jessup, MD 20794	(410) 799-7777 (410) 974-3126
Person responsible for program	Robert Crawford
Contact for additional information	Stephen Taylor, Michael Jordan
Additional certification/recognition	

National Type Evaluation Program (NTEP)	
Address	Telephone Number
MD Dept of Agriculture 50 Harry S Truman Pkwy Annapolis, MD 21401	(410) 841-5790
Person responsible for program	Constantine V. Cotsoradis
Contact for additional information	
Additional certification/recognition	NIST Authorized Laboratory
NTEP testing of commercial scales and weighing devices, liquid measuring devices, and cash registers interfaced with scales.	

Massachusetts

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
Donald W. Smith, Metrologist	MA Division of Standards One Ashburton Place Boston, MA 02108	(617) 727-5698

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb	X		Weight > 3 kg	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	X			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
Labor...\$35 per hour. Tolerance testing, Class F, \$4 each weight, \$2 adjustment fee.

Massachusetts

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Division of Standards One Ashburton Place Boston, MA 02108	(617) 727-3480
Person responsible for program	Charles H. Carroll
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Michigan

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
Harold Birgy, Metrologist/Weights and Measures Specialist Ronald Balaze, Metrologist	MI Dept of Agriculture Food Division Ottawa Bldg, 4th Fl PO Box 30017 Lansing, MI 48909	(517) 373-1060 (Office) (517) 373-9897 (Lab) FAX: (517) 335-0628

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
Labor...\$36.50 per hour. (\$50.75, overtime)

Remarks:

The Michigan laboratory has a 25-gallon slicker plate volume standard for precision volume calibration.

Michigan

Grain Moisture Testing	
Address	Telephone Number
Food Division Michigan Department of Agriculture PO Box 30017 Lansing, MI 48909	(517) 373-1060
Person responsible for program	M. J. Mosier
Contact for additional information	E. C. Heffron
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Food Division Michigan Department of Agriculture PO Box 30017 Lansing, MI 48909	(517) 373-1060
Person responsible for program	Celeste Bennett
Contact for additional information	E. C. Heffron
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
320 S. Walnut Lansing, MI 48909	(517) 373-9897
Person responsible for program	Harold Birgy
Contact for additional information	
Additional certification/recognition	

Minnesota

Certification Period: 1992-1994

Laboratory Staff	Address	Telephone Number
David Dikken, Metrologist	Dept of Public Service Division of Weights and Measures 2277 Hwy 36 St. Paul, MN 55113	(612) 639-4010
Bruce A. Adams, Metrologist		(612) 639-8537

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	F

Fees
Labor...\$75 per hour.

Remarks:

Minnesota metrologists have received NIST Mass MAP training, and calibration of precision weights is performed using weighing designs and data are reduced with NIST Mass Code computer software.

Minnesota

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Minnesota Department of Public Service Weights and Measures Division 2277 Hwy 36 St. Paul, MN 55113	(612) 639-4010
Person responsible for program	Michael Blacik
Contact for additional information	Bruce A. Adams
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
2277 Hwy 36 St. Paul, MN 55113	(612) 639-4010
Person responsible for program	Bruce A. Adams
Contact for additional information	
Additional certification/recognition	Railroad Test Car calibration at Minnesota Master Track Scale

Mississippi

Certification Period: 1992

Laboratory Staff	Address	Telephone Number
Jerry Burton, Inspector	PO Box 1043 Alcorn State University Lorman, MS 39096	(601) 877- 3802 FAX: (601) 877-3802

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	N	Mass	Weight \leq 3 kg	X
	Weight > 1000 lb	X		Weight > 3 kg	X
Volume	Small \leq 25 gal	N	Volume	Metal Standards	X
	Intermediate 25 - 500 gal	X		Small Glassware	X
	Large > 500 gal	X			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	X
				Rigid Rules	X
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
No fees are charged.

Mississippi

Grain Moisture Testing	
Address	Telephone Number
Moisture Meter Testing Laboratory Delta State University PO Box 3323 Cleveland, MS 38733	(601) 843-1078 (610) 354-7077
Person responsible for program	Janice Proctor
Contact for additional information	William Eldridge
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Mississippi Department of Agriculture and Commerce Petroleum Testing Division PO Box 1609 Jackson, MS 39215-1609	(601) 354-6202
Person responsible for program	Tommy Harrell
Contact for additional information	Connie Braswell
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Missouri

Certification Period: 1992

Laboratory Staff	Address	Telephone Number
Robert Wittenberger, Laboratory Program Supervisor, Metrologist	Mailing: MO Dept of Agriculture PO Box 630 Jefferson City, MO 65102 Shipping: 1616 Missouri Blvd Jefferson City, MO 65109	(314) 751-3440

Services Available					
Tolerance Testing			Calibration		
Mass	Weight ≤ 1000 lb	F	Mass	Weight ≤ 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small ≤ 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	F
			Temperature	Liquid in Glass Thermometry	X

Fees
Labor...\$25 per hour, tolerance testing; \$35 per hour, calibration. One hour minimum charge, time over one hour rounded to the nearest hour.

Remarks:

Missouri moved into a new laboratory in 1986.

Missouri

Grain Moisture Testing	
Address	Telephone Number
1616 Missouri Blvd Jefferson City, MO 65109	(314) 751-3440
Person responsible for program	Robert D. Wittenberger
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
1620 Missouri Blvd Jefferson City, MO 65109	(314) 751-2922
Person responsible for program	Ronald G. Hayes
Contact for additional information	Carolyn Kempker
Additional certification/recognition	ASTM

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Montana

Certification Period: 1992

Laboratory Staff	Address	Telephone Number
Dan Nisbet, Metrologist	Bureau of Weights and Measures 1424 E 9th Ave Helena, MT 59620-0423	(406) 449-2582

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	X
	Weight > 1000 lb	F		Weight > 3 kg	X
Volume	Small \leq 25 gal	F	Volume	Metal Standards	X
	Intermediate 25 - 500 gal	F		Small Glassware	X
	Large > 500 gal	X			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	X
				Rigid Rules	X
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
Labor...\$20 per hour.

Remarks:

Laboratory is not operated on a full-time basis.

Montana

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Nebraska

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
Gary Kliment, Metrologist	Division of Weights and Measures PO Box 94757 Lincoln, NE 68509 NE Standards Lab, 3705 S 14th St Lincoln, NE 68502	(402) 471-4292 Office (402) 479-4171 Lab FAX: (402) 471-3252

Services Available

Tolerance Testing			Calibration		
Mass	Weight ≤ 1000 lb	F	Mass	Weight ≤ 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small ≤ 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees

Labor...\$23 per hour. Plus materials, and time spent cleaning.

Mass: Class F: Other Sets:

Number of weights

1 - 14	\$24	\$30
15 - 25	32	50
26 - 38	48	70
> 38	\$1 each additional weight	

< 1/4 oz \$23/hour; 1/4 oz < W \leq 5 lb: \$5; 5 \leq 50 lb: \$8; 50 \leq 1000: \$12.

Length and Volume:

flasks: < gill: \$6.50; gill - pint: \$9; quart: \$10.50;
 1/2 gal: \$13.50; gallon: \$16.00; \leq 5 gallon: \$12; 5-25 gallon:
 \$25; 25-100 gallon: \$35.

tapes: 3 ft - 100 ft: \$1 per interval.

Nebraska

Grain Moisture Testing	
Address	Telephone Number
Nebraska Public Service Commission PO Box 94927 Lincoln, NE 68509-4927	(402) 471-0235
Person responsible for program	John Fecht/Don Kendle
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Nevada

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
Steve Grabski, Metrologist	NV Dept of Agriculture PO Box 11100 Reno, NV 89510-1100 Shipping: 2150 Frazer Ave Sparks, NV 89431	(702) 789-0166 FAX: (702) 789-0120

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
Labor...\$20 per hour, plus parts and shipping costs.

Nevada

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE Historical Information: Was available years ago and performed by the Dept of Agriculture Seed Analyst. PO Box 11100 Reno, NV 89510-1100	
Person to contact for additional information	Randy Bradley, Seed Analyst
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
PO Box 11100, 350 Capitol Hill St Reno, NV 89510-1100	(702) 688-1180
Person responsible for program	Robert Gronowski, Plant Industry Director
Contact for additional information	Debbie Furrie, Petroleum Chemist
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

New Hampshire

Certification Period:

Laboratory Staff	Address	Telephone Number
Michael F. Grenier, Director/Metrologist	NH Department of Agriculture Caller Box 2042 10 Ferry St Concord, NH 03301-2042	(603) 271-3709 FAX: (603) 271-1109

Services Available

Tolerance Testing			Calibration		
Mass	Weight ≤ 1000 lb	X	Mass	Weight ≤ 3 kg	X
	Weight > 1000 lb	X		Weight > 3 kg	X
Volume	Small ≤ 25 gal	X	Volume	Metal Standards	X
	Intermediate 25 - 500 gal	X		Small Glassware	X
	Large > 500 gal	X			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	X
				Rigid Rules	X
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees

Labor...\$40 per hour.

Glass flasks: \$15; V \leq 5-gal: \$20; 5 gal < V \leq 25 gal: \$20; 25 gal < V \leq 150 gal: \$125;
 Compartment calibrations: 1st 100 gal: \$40; Each addl 100 gal \$1.50

Class F Test weights, meeting specifications and tolerances contained in NIST Handbook 105-1:

30 lb weight kit: \$45; 5, 10, 25, 50 lb weights: \$10 each

W < 500 lb: \$10 each; W > 500 lb: \$25 each;

Length: Rigid rules: \$10; Steel tapes \leq 50 feet: \$15; 50 ft < L \leq 100 ft: \$25 each

New Hampshire

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
10 Ferry St Concord, NH 03301-2042	(603) 271-3709
Person responsible for program	Michael Grenier
Contact for additional information	
Additional certification/recognition	Testing of Wheel Load Weighers

New Jersey

Certification Period: 1992-1994

Laboratory Staff	Address	Telephone Number
Pasquale D'Errico, Inspector I Walter L. Smith, Inspector II	Office of Weights and Measures 1261 US Rte 1 and 9 South Avenel, NJ 07001	(908) 815-4840

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	N	Mass	Weight \leq 3 kg	N
	Weight > 1000 lb	X		Weight > 3 kg	N
Volume	Small \leq 25 gal	N	Volume	Metal Standards	N
	Intermediate 25 - 500 gal	N		Small Glassware	N
	Large > 500 gal	N			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	N
				Rigid Rules	N
			Frequency	Tuning Forks	N
			Temperature	Liquid in Glass Thermometry	X

Fees
No fees are charged.

Remarks:

New Jersey moved into a new laboratory in 1988. Laboratory tests stopwatches, and also provides linear measurements using a special comparator table.

New Jersey

Grain Moisture Testing	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

New Mexico

Certification Period: 1991-1993

Laboratory Staff	Address	Telephone Number
Richard F. Schulmeister, Metrologist	NM Dept of Agriculture Standards and Consumer Services PO Box 30005 Dept 3170 Las Cruces, NM 88003-0005	(505) 646-1616 FAX: (505) 646-3303

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	F
			Temperature	Liquid in Glass Thermometry	X

Fees
Labor...\$28 per hour. Minimum 1/2 hour charge.

New Mexico

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
PO Box 30005, Dept 3170 Corner of Gregg and Espina Las Cruces, NM 88003-0005	(505) 646-1616 FAX: (505) 646-3303
Person responsible for program	Fred Gerk
Contact for additional information	Floyd Highfill
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

New York

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
Ross J. Andersen, Metrologist William Fishman, Metrologist	Bureau of Weights and Measures Bldg 7A State Campus Albany, NY 12235	(518) 457-3452 FAX: (518) 457-4780

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	F

Fees
Labor...Special Tests: \$75 per hour. Fees vary according to type of artifact and type of service requested. Contact laboratory directly for specific fee information.

Remarks:

The New York laboratory also tests stopwatches and taximeters.

New York

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Bureau of Weights and Measures 1 Winners Circle Albany, NY 12235	(518) 457-3146
Person responsible for program	John J. Bartfai
Contact for additional information	Ross Andersen
Additional certification/recognition	

National Type Evaluation Program (NTEP)	
Address	Telephone Number
Bureau of Weights and Measures Bldg 7A State Campus Albany, NY 12235	(518) 457-3452
Person responsible for program	John Bartfai
Contact for additional information	Ross Andersen, William Fishman
Additional certification/recognition	NIST Authorized Laboratory
NTEP testing of scales, other weighing systems, and electronic cash registers interfaced with scales.	

North Carolina

Certification Period: 1992-1994

Laboratory Staff	Address	Telephone Number
L. F. Eason, Standards Laboratory Manager Metrologist II Sharon Denning, Metrologist I Crawford Smith, Metrologist I Cheryl Tew, Grain Moisture Program Supervisor	NC Dept of Agriculture/Dept SD Standards Laboratory, PO Box 27647 Raleigh, NC 27611 Shipping: 4040 District Drive, Raleigh, NC 27607	(919) 733-4411 FAX: (919) 733-8804

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	N	Mass	Weight \leq 3 kg	N
	Weight > 1000 lb	N		Weight > 3 kg	N
Volume	Small \leq 25 gal	N	Volume	Metal Standards	N
	Intermediate 25 - 500 gal	N		Small Glassware	N
	Large > 500 gal	N			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	N
				Rigid Rules	N
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	N

Fees
No fees are charged.

Remarks:

North Carolina moved into a new laboratory in 1985 and has an additional large volume calibration facility in Wilmington, NC.

North Carolina

Grain Moisture Testing	
Address	Telephone Number
NC Dept of Agriculture Standards Laboratory PO Box 27647 Raleigh, NC 27611	(919) 733-4411
Person responsible for program	Cheryl Tew
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
NC Dept of Agriculture Motor Fuels Laboratory PO Box 27647 Raleigh, NC 27611	(919) 733-3246
Person responsible for program	Duane Scott
Contact for additional information	
Additional certification/recognition	National Regional Exchange Program, ASTM Member

National Type Evaluation Program (NTEP)	
Address	Telephone Number
4040 District Drive Raleigh, NC 27607	(919) 733-3313
Person responsible for program	N. David Smith
Contact for additional information	Ronald Murdock
Additional certification/recognition	NIST Authorized Laboratory
NTEP testing of field performance evaluations on liquid measuring devices.	

North Dakota

Certification Period: Not Currently Certified

Laboratory Staff	Address	Telephone Number
Alan Moch, Director/Metrologist	Public Service Commission Weights and Measures Division State Capitol Bismarck, ND 58505	(701) 224-2400 FAX: (701) 224-2410

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	X
	Weight > 1000 lb	F		Weight > 3 kg	X
Volume	Small \leq 25 gal	F	Volume	Metal Standards	X
	Intermediate 25 - 500 gal	F		Small Glassware	X
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	X
				Rigid Rules	X
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
Labor...\$7.50 per quarter hour, per person.

Remarks:

North Dakota is involved with accuracy testing of allocation crude oil and gas meters. Laboratory is not operated on a full-time basis.

North Dakota

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Health and Consolidated laboratories PO Box 937 Bismarck, ND 58502-0937	(701) 221-6149
Person responsible for program	Peri Dura
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Ohio

Certification Period: 1992

Laboratory Staff	Address	Telephone Number
vacant, Metrologist Jim Truex, Inspection Manager	Dept of Agriculture 8995 E Main St Reynoldsburg, OH 43068	(614) 866-6361 FAX: (614) 866-4174

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	X
	Large > 500 gal	X			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
<p>Fees are established pursuant to Section 901.43 of the Ohio Revised Code and vary according to type of artifact and type of service requested. Contact the laboratory directly for fee information.</p>

Ohio

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

National Type Evaluation Program (NTEP)	
Address	Telephone Number
Department of Agriculture 8995 E Main St Reynoldsburg, OH 43068	(614) 866-6361
Person responsible for program	Jim Truex
Contact for additional information	
Additional certification/recognition	NIST Authorized Laboratory
NTEP testing of commercial scales, other weighing devices and electronic cash registers interfaced with scales. Performance	

Oklahoma

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
Ken L. Fraley, Metrologist Richard Gonzales, Sr Laboratory Technician	Bureau of Standards Laboratory Division 2800 N Lincoln Blvd Oklahoma City, OK 73105	(405) 521-3864 X370 FAX: (405) 521-4912

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	X			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
Labor...\$25 per hour for special tests not listed in the fee schedule. Fees vary according to type of artifact and type of service requested. Contact laboratory directly for specific fee information.

Remarks:

Oklahoma moved into a new laboratory in 1986. The laboratory has sophisticated computer software for control charts and data analysis.

Oklahoma

Grain Moisture Testing	
Address	Telephone Number
Bureau of Standards 2800 N Lincoln Oklahoma City, OK 73105	(405) 521-3864 X370
Person responsible for program	Ken L. Fraley
Contact for additional information	Richard Gonzales
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Oklahoma Corporation Commission Fuel Inspection Division 130 NE 23rd ST Oklahoma City, OK 73105	(405) 521-2487
Person responsible for program	Ron Hamilton
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Oregon

Certification Period: 1991-1993

Laboratory Staff	Address	Telephone Number
James F. Clifford, Metrologist	OR Dept of Agriculture Msmt Standards Division 635 Capitol St NE Salem, OR 97310-0110	(503) 378-3792 FAX: (503) 378-6525

Services Available					
Tolerance Testing			Calibration		
Mass	Weight ≤ 1000 lb	F	Mass	Weight ≤ 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small ≤ 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
Labor...\$25 per hour.

Oregon

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Measurement Standards Division Oregon Department of Agriculture 635 Capitol St NE Salem, OR 97310-0110	(503) 373-0964
Person responsible for program	Ken Simila
Contact for additional information	
Additional certification/recognition	

National Type Evaluation Program (NTEP)	
Address	Telephone Number
Oregon Department of Agriculture Measurement Standards Division 635 Capitol St NE Salem, OR 97310-0110	(503) 378-3792
Person responsible for program	George Shefcheck
Contact for additional information	James F. Clifford
Additional certification/recognition	NIST Authorized Laboratory
NTEP field performance evaluations on vehicle, axle-load, livestock and floor scales.	

Pennsylvania

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
John E. Fisher, Lab Division Chief G. Edward Carpenter, Metrologist Peter Millvan, Metrologist	Dept of General Services 2221 Forster St Room G-28 Harrisburg, PA 17125 Metrology Laboratory B 124 Transportation and Safety Bldg Commonwealth Ave & North St Harrisburg, PA 17120	(717) 787-6426

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	N	Mass	Weight \leq 3 kg	N
	Weight > 1000 lb	N		Weight > 3 kg	N
Volume	Small \leq 25 gal	N	Volume	Metal Standards	N
	Intermediate 25 - 500 gal	N		Small Glassware	N
	Large > 500 gal	X			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	N
				Rigid Rules	N
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
No fees are charged.

Pennsylvania

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
NONE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Puerto Rico

Certification Period: 1992-1994

Laboratory Staff	Address	Telephone Number
Edmundo Rosario Fred, Technician Jose A. Torres Ferrer, Technician, Field Supervisor	Commonwealth of Puerto Rico Dept of Consumer Affairs PO Box 41059 Minillas Station Santurce, Puerto Rico 00940 Weights and Measures Laboratory 722 Hoare St Santurce, PR 00908	(809) 724-5153 FAX: (809) 726-6570

Services Available

Tolerance Testing			Calibration		
Mass	Weight ≤ 1000 lb	F	Mass	Weight ≤ 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small ≤ 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees

Fees are established in accordance with the Law of Weights and Measures of the Commonwealth of Puerto Rico jointly with the Organic Law of the Department of Consumer Affairs. Fees vary according to type of artifact and type of service requested.

Remarks:

Laboratory also tests density hydrometers used to test sugars, refractometers, and polarimeters.

Puerto Rico

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Department of Consumer Affairs 722 Hoare St Santurce, PR 00908	(809)724-5153
Person responsible for program	José A. Torres Ferrer
Contact for additional information	Heliodoro Lopez Torres
Additional certification/recognition	contract testing

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Rhode Island

Certification Period: 1992

Laboratory Staff	Address	Telephone Number
Lynda Agresti Maurer, Supervising Metrologist Frederic J. Violo, Metrologist	Dept of Labor 220 Elmwood Ave Providence, RI 02907	(401) 457-1867

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	N	Mass	Weight \leq 3 kg	X
	Weight > 1000 lb	X		Weight > 3 kg	X
Volume	Small \leq 25 gal	N	Volume	Metal Standards	X
	Intermediate 25 - 500 gal	X		Small Glassware	X
	Large > 500 gal	X			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	X
				Rigid Rules	X
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
No fees are charged.

Remarks:

Laboratory is not operated on a full-time basis.

Rhode Island

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Tax Administration One Capitol Hill Providence, RI 02908-5800	(401) 277-3050
Person responsible for program	Gary Clark
Contact for additional information	Robert Geruso
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

South Carolina

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
John V. Pugh, Metrology Laboratory Dir Billy Kennington, Metrologist	Dept of Agriculture/Cons Protection PO Box 11280 Columbia, SC 29211 Shipping: 237 Catawba St Columbia, SC 29201	(803) 737-2080 (803) 253-4052 FAX: (803) 734-2192

Services Available					
Tolerance Testing			Calibration		
Mass	Weight ≤ 1000 lb	N	Mass	Weight ≤ 3 kg	N
	Weight > 1000 lb	N		Weight > 3 kg	N
Volume	Small ≤ 25 gal	N	Volume	Metal Standards	N
	Intermediate 25 - 500 gal	N		Small Glassware	N
	Large > 500 gal	N			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	N
				Rigid Rules	N
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
No fees are charged.

South Carolina

Grain Moisture Testing	
Address	Telephone Number
PO Box 11280 Columbia, SC 29211	(803) 253-4052
Person responsible for program	John V. Pugh
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
PO Box 11280 Columbia, SC 29211	(803) 737-2070
Person responsible for program	Dr. Thomas W. Brooks
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

South Dakota

Certification Period: 1992

Laboratory Staff	Address	Telephone Number
James Peskey, Sr. Retail Inspector Leonard G. Bies, Sr. Inspector	Division of Commercial Inspection and Regulation Office of Weights and Measures 118 W Capitol Pierre, SD 57501	(605) 773-3697 FAX: (605) 773-4117

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	X
	Weight > 1000 lb	F		Weight > 3 kg	X
Volume	Small \leq 25 gal	F	Volume	Metal Standards	X
	Intermediate 25 - 500 gal	X		Small Glassware	X
	Large > 500 gal	X			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	X
				Rigid Rules	X
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
Labor...\$20 per hour.

Remarks:

Laboratory is not operated on a full-time basis.

South Dakota

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
See laboratory address	
Person responsible for program	James Peskey, Senior Inspector
Contact for additional information	James Melgaard, Director
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Tennessee

Certification Period: 1992

Laboratory Staff	Address	Telephone Number
Robert G. Williams, Supervisor Gary Livingston, Metrologist	TN Dept of Agriculture PO Box 40627 Melrose Station Nashville, TN 37204	(615) 360-0159 Office (615) 360-0158 Lab FAX: (615) 360-0194

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	N	Mass	Weight \leq 3 kg	X
	Weight > 1000 lb	X		Weight > 3 kg	X
Volume	Small \leq 25 gal	N	Volume	Metal Standards	X
	Intermediate 25 - 500 gal	X		Small Glassware	X
	Large > 500 gal	X			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	X
				Rigid Rules	X
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
No fees are charged.

Tennessee

Grain Moisture Testing	
Address	Telephone Number
TN Dept of Agriculture Quality and Standards PO Box 40627 Nashville, TN 37204	(615) 360-0159
Person responsible for program	Robert Williams, Standards Administrator
Contact for additional information	Cathryn Pittman, Technologist
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
TN Dept of Agriculture Quality and Standards Holeman Bldg, PO Box 40627 Nashville, TN 37204	(615) 360-0147
Person responsible for program	Randy Jennings, Petroleum Administrator
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Texas

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
James H. Eskew, Administrator of Metrology Program Patrick Forester, Metrologist Rodger Brown, Metrologist Randy Calcote, Metrologist, Lubbock	TX Dept of Agriculture Metrology Laboratory 119 Cumberland Rd Austin, TX 78704	(512) 462-1441 FAX: (512) 475-1642

Services Available					
Tolerance Testing			Calibration		
Mass	Weight ≤ 1000 lb	F	Mass	Weight ≤ 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small ≤ 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
Mass, Tolerance Testing: $W < 10$ lb: \$2; $10 \leq W < 500$ lb: \$5; $500 \leq W < 2500$ lb: \$10; $W \geq 2500$ lb: \$20. Mass, Calibrations: $W \leq 3$ kg: \$25 each; $3 \text{ kg} < W \leq 30$ kg: \$50 each; $W > 30$ kg: \$70 each. Volume: $V \leq 5$ gal: \$10; $V > 5$ gal: \$10 plus \$0.20 per gal over 5 gallons; glassware: \$25 per increment. Length: \$25 per increment.

Remarks:

Texas has independent laboratory rooms, balances, and standards for calibration and tolerance testing of mass. Calibrations up to 2500 lb, and tolerance testing up to 5000 lb are possible.

Texas

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Utah

Certification Period: 1992

Laboratory Staff	Address	Telephone Number
Daniel S. Mays, Metrologist Robert A. Smoot	UT Dept of Agriculture Weights and Measures Division 350 N Redwood Rd Salt Lake City, UT 84116	(801) 538-7156 FAX: (801) 538-7126

Services Available					
Tolerance Testing			Calibration		
Mass	Weight ≤ 1000 lb	F	Mass	Weight ≤ 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small ≤ 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
Contact laboratory for fee information.

Utah

Grain Moisture Testing	
Address	Telephone Number
UT Department of Agriculture Grain Inspection 128 17th St PO Box 1519 Ogden, UT 84402	(801) 392-2292
Person responsible for program	C. Larry Warner
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
UT Department of Agriculture Weights and Measures Division 350 N Redwood Rd Salt Lake City, UT 84116	(801) 538-7154
Person responsible for program	Monty Brown
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Vermont

Certification Period: 1991-1993

Laboratory Staff	Address	Telephone Number
Raymond P. Cioffi, Metrologist/Weights and Measures Specialist	Vermont Department of Agriculture Labs 103 S Main St Waterbury, VT 05671-0101	(802) 244-4510 Lab FAX: (802) 241-3008

Services Available					
Tolerance Testing			Calibration		
Mass	Weight ≤ 1000 lb	F	Mass	Weight ≤ 3 kg	F
	Weight > 1000 lb	X		Weight > 3 kg	F
Volume	Small ≤ 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	X			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	O
				Rigid Rules	X
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
Labor...\$25 per hour. Syrup hydrometers: \$1. Sap hydrometers and certificate: \$3. Refractometers: \$25 per hour.

Remarks:

Laboratory tests density hydrometers which are used in the syrup industry. Laboratory is not operated on a full-time basis.

Vermont

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Consumer Assurance Section VT Department of Agriculture Food & Markets 120 State St Montpelier, VT 05620-2901	(802) 828-2436
Person responsible for program	Bruce Martell
Contact for additional information	Ray Cioffi
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Vermont Department of Agriculture Labs 103 S Main St Waterbury, VT 05671-0101	(802) 244-4510
Person responsible for program	Bruce Martell
Contact for additional information	Ray Cioffi
Additional certification/recognition	Wheel Load Weigher Testing

Virginia

Certification Period: 1992-1994

Laboratory Staff	Address	Telephone Number
Michael J. Kramer, Inspector	VA Dept of Agriculture and Consumer Services PO Box 1163 Rm 403 Richmond, VA 23209	(804) 786-0479 FAX: (804) 371-0351

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	N	Mass	Weight \leq 3 kg	N
	Weight > 1000 lb	N		Weight > 3 kg	N
Volume	Small \leq 25 gal	N	Volume	Metal Standards	N
	Intermediate 25 - 500 gal	N		Small Glassware	N
	Large > 500 gal	N			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	N
				Rigid Rules	N
			Frequency	Tuning Forks	N
			Temperature	Liquid in Glass Thermometry	N

Fees
No fees are charged.

Remarks:

Laboratory also tests Babcock dairy bottles and other associated glassware.

Virginia

Grain Moisture Testing	
Address	Telephone Number
VA Department of Agriculture and Consumer Services PO Box 1163 Richmond, VA 23209	(804) 786-3939
Person responsible for program	W. Randy Sanford
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
VA Department of Agriculture and Consumer Services PO Box 1163 Richmond, VA 23209	(804) 786-2476
Person responsible for program	Supervisory Weights and Measures Staff
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Virgin Islands

Certification Period: Not Currently Certified

Laboratory Staff	Address	Telephone Number
Sandra Croft, Metrologist	Consumer Service Division Golden Rock Shopping Center Christiansted St VI 00820	(809) 774-3130 FAX: (809) 778-8250

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	X	Mass	Weight \leq 3 kg	X
	Weight > 1000 lb	X		Weight > 3 kg	X
Volume	Small \leq 25 gal	X	Volume	Metal Standards	X
	Intermediate 25 - 500 gal	X		Small Glassware	X
	Large > 500 gal	X			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	X
				Rigid Rules	X
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees

Remarks:

Laboratory equipment and standards were destroyed by Hurricane Hugo in 1989.

Virgin Islands

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Washington

Certification Period: 1991-1993

Laboratory Staff	Address	Telephone Number
James H. Cammel, Metrologist, Inspector III John W. Allen, Asst Metrologist	Dept of Agriculture Weights and Measures 406 General Administration Olympia, WA 98504	(206) 753-5042 FAX: (206) 586-7029

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small \leq 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
<p>Fees vary according to type of artifact and type of service requested. Contact laboratory directly for specific fee information.</p> <p>Repairs, if necessary, will be made only with owner-approval at the rate of \$25 per hour.</p>

Washington

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

West Virginia

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
Karl H. Angell, Jr, Metrologist Dannie Abshire, Inspector II	WV Dept of Labor Weights and Measures Division 570 McCorkel Ave St. Albans, WV 25117	(304) 727-5781 FAX: (304) 348-3797

Services Available					
Tolerance Testing			Calibration		
Mass	Weight ≤ 1000 lb	N	Mass	Weight ≤ 3 kg	N
	Weight > 1000 lb	N		Weight > 3 kg	N
Volume	Small ≤ 25 gal	N	Volume	Metal Standards	N
	Intermediate 25 - 500 gal	N		Small Glassware	N
	Large > 500 gal	N			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	N
				Rigid Rules	N
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
No fees are charged.

Remarks:

The West Virginia laboratory was remodeled in 1989.

West Virginia

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Wisconsin

Certification Period: 1991-1993

Laboratory Staff	Address	Telephone Number
James H. Akey, Metrologist Alan Porter, Technical Supervisor	WI Dept of Agriculture Trade and Consumer Protection 4702 University Ave Madison, WI 53705 PO Box 7883 Madison, WI 53707-7883	(608) 267-3510 Lab FAX: (608) 266-1560

Services Available					
Tolerance Testing			Calibration		
Mass	Weight ≤ 1000 lb	F	Mass	Weight ≤ 3 kg	F
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small ≤ 25 gal	F	Volume	Metal Standards	F
	Intermediate 25 - 500 gal	F		Small Glassware	F
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	F
				Rigid Rules	F
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
<p>Labor...\$50 per hour. Minimum charge is 1/2 hour.</p> <p>Verification of weights and measures used in enforcement work by State, county, and municipal governments is exempt from fees.</p> <p>Mass, tolerance testing: 500 lb, 1,000 lb: \$15.00 each; all smaller weights \$6.00 each. Weight sets (<25 pcs): \$50. Adjusted weights charged double fees.</p> <p>Volume: glass flasks: \$50.00; field test measures, 1 and 5 gal: \$15.00; provers, 50 and 100 gal: \$50.00. > 100 gal at hourly rate.</p>

Remarks:

The Wisconsin laboratory also provides vapor meter testing with a bell jar prover.

Wisconsin

Grain Moisture Testing	
Address	Telephone Number
PO Box 7883 Madison, WI 53707-7883	(608) 267-3510
Person responsible for program	James H. Akey
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
Department of Industry, Labor and Human Relations Petroleum Inspection 201 E Washington Ave Madison, WI 53703	(608) 266-8076
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Wyoming

Certification Period: 1990-1992

Laboratory Staff	Address	Telephone Number
Victor Gerber, Metrologist	WY Dept of Agriculture 2219 Carey Ave Cheyenne, WY 82002	(307) 777-7324 FAX: (307) 777-6593

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	X
	Weight > 1000 lb	F		Weight > 3 kg	X
Volume	Small \leq 25 gal	F	Volume	Metal Standards	X
	Intermediate 25 - 500 gal	F		Small Glassware	X
	Large > 500 gal	F			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	X
				Rigid Rules	X
			Frequency	Tuning Forks	F
			Temperature	Liquid in Glass Thermometry	X

Fees
Labor...\$10 per hour. New fee schedule to be implemented 7/92.

Remarks:

Wyoming moved into a new laboratory facility in 1988.

Wyoming

Grain Moisture Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Petroleum Quality Testing	
Address	Telephone Number
NOT AVAILABLE	
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

USDA/FGIS

Certification Period: 1992-1994

Laboratory Staff	Address	Telephone Number
Paul Hadyka, Industrial Specialist	USDA/FGIS Room 1640-S PO Box 96454 1400 Independence Ave SW Washington, DC 20090-6454	(202) 720-0262 (DC)
Willis Norrs, Industrial Specialist		FAX: (202) 720-1015
Fred Anderson, Industrial Specialist		(708) 458-0655 (IL) FAX: (708) 458-0749

Services Available					
Tolerance Testing			Calibration		
Mass	Weight \leq 1000 lb	F	Mass	Weight \leq 3 kg	X
	Weight > 1000 lb	F		Weight > 3 kg	F
Volume	Small \leq 25 gal	X	Volume	Metal Standards	X
	Intermediate 25 - 500 gal	X		Small Glassware	X
	Large > 500 gal	X			
O: Service to parent organization only; F: Service available on a fee basis; N: Service available, no fee; X: No certification, contact laboratory for availability.			Length	Steel Tapes	X
				Rigid Rules	X
			Frequency	Tuning Forks	X
			Temperature	Liquid in Glass Thermometry	X

Fees
Labor...\$41.90 per hour.

Remarks:

Tolerance testing of 50 lb test weights and mass standards from 500 lb to 10,000 lb is provided by Willis Norrs: USDA, FGIS, Master Scale Depot, 5800 W. 69th St, Chicago, IL 60638. Also calibration of 2,500 to 10,000 lb at Master Scale.

USDA/FGIS

Grain Moisture Testing	
Address	Telephone Number
USDA FGIS Standardization QC Branch PO Box 20285 Kansas City, MO 64195	(816) 891-8070 (816) 374-6547
Person responsible for program	James Rampton
Contact for additional information	Ron Bicak
Additional certification/recognition	

National Type Evaluation Program (NTEP)	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	NIST Authorized Participating Laboratory
NTEP testing of automatic bulk weighing systems, railway track scales, and grain moisture scales.	

Additional Tests or Laboratory Functions	
Address	Telephone Number
Person responsible for program	
Contact for additional information	
Additional certification/recognition	

NIST-114A (REV. 3-89)		U.S. DEPARTMENT OF COMMERCE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY		1. PUBLICATION OR REPORT NUMBER NIST/SP-791, 1992 Edition
BIBLIOGRAPHIC DATA SHEET		2. PERFORMING ORGANIZATION REPORT NUMBER		3. PUBLICATION DATE March 1992
4. TITLE AND SUBTITLE State Weights and Measures Laboratories: State Standards Program Description and Directory				
5. AUTHOR(S) Georgia L. Harris				
6. PERFORMING ORGANIZATION (IF JOINT OR OTHER THAN NIST, SEE INSTRUCTIONS) U.S. DEPARTMENT OF COMMERCE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY GAITHERSBURG, MD 20899			7. CONTRACT/GRANT NUMBER	
8. TYPE OF REPORT AND PERIOD COVERED Final			9. SPONSORING ORGANIZATION NAME AND COMPLETE ADDRESS (STREET, CITY, STATE, ZIP) Same as item 6.	
10. SUPPLEMENTARY NOTES Supersedes NBS/SP-686, and SP 791, 1990 Edition				
<input type="checkbox"/> DOCUMENT DESCRIBES A COMPUTER PROGRAM; SF-185, FIPS SOFTWARE SUMMARY, IS ATTACHED.				
11. ABSTRACT (A 200-WORD OR LESS FACTUAL SUMMARY OF MOST SIGNIFICANT INFORMATION. IF DOCUMENT INCLUDES A SIGNIFICANT BIBLIOGRAPHY OR LITERATURE SURVEY, MENTION IT HERE.) <p>In support of its mission to promote uniform standards of measurement throughout the country, the National Institute of Standards and Technology (NIST) received funding in 1965 to provide new standards of mass, length, and volume to State weights and measures laboratories. This program, called the [New] State Standards Program, also provided the equipment needed to perform calibrations in these measurement areas.</p> <p>Part I describes the certification program whereby NIST certifies State weights and measures laboratories. Part II is the directory of State weights and measures laboratories and lists the services they provide to State and local weights and measures agencies as well as to industry. The directory is intended to assist potential users of the laboratory services in locating and obtaining needed measurement services.</p>				
12. KEY WORDS (6 TO 12 ENTRIES; ALPHABETICAL ORDER; CAPITALIZE ONLY PROPER NAMES; AND SEPARATE KEY WORDS BY SEMICOLONS) calibration; measurement control; National Type Evaluation Program; State directory; State services; tolerance testing; weights and measures				
13. AVAILABILITY <input checked="" type="checkbox"/> UNLIMITED FOR OFFICIAL DISTRIBUTION. DO NOT RELEASE TO NATIONAL TECHNICAL INFORMATION SERVICE (NTIS). <input checked="" type="checkbox"/> ORDER FROM SUPERINTENDENT OF DOCUMENTS, U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, DC 20402. <input checked="" type="checkbox"/> ORDER FROM NATIONAL TECHNICAL INFORMATION SERVICE (NTIS), SPRINGFIELD, VA 22161.			14. NUMBER OF PRINTED PAGES 127	
15. PRICE			16. PRICE	

NIST Technical Publications

Periodical

Journal of Research of the National Institute of Standards and Technology—Reports NIST research and development in those disciplines of the physical and engineering sciences in which the Institute is active. These include physics, chemistry, engineering, mathematics, and computer sciences.

Papers cover a broad range of subjects, with major emphasis on measurement methodology and the basic technology underlying standardization. Also included from time to time are survey articles on topics closely related to the Institute's technical and scientific programs. Issued six times a year.

Nonperiodicals

Monographs—Major contributions to the technical literature on various subjects related to the Institute's scientific and technical activities.

Handbooks—Recommended codes of engineering and industrial practice (including safety codes) developed in cooperation with interested industries, professional organizations, and regulatory bodies.

Special Publications—Include proceedings of conferences sponsored by NIST, NIST annual reports, and other special publications appropriate to this grouping such as wall charts, pocket cards, and bibliographies.

Applied Mathematics Series—Mathematical tables, manuals, and studies of special interest to physicists, engineers, chemists, biologists, mathematicians, computer programmers, and others engaged in scientific and technical work.

National Standard Reference Data Series—Provides quantitative data on the physical and chemical properties of materials, compiled from the world's literature and critically evaluated. Developed under a worldwide program coordinated by NIST under the authority of the National Standard Data Act (Public Law 90-396). NOTE: The Journal of Physical and Chemical Reference Data (JPCRD) is published bimonthly for NIST by the American Chemical Society (ACS) and the American Institute of Physics (AIP). Subscriptions, reprints, and supplements are available from ACS, 1155 Sixteenth St., NW., Washington, DC 20056.

Building Science Series—Disseminates technical information developed at the Institute on building materials, components, systems, and whole structures. The series presents research results, test methods, and performance criteria related to the structural and environmental functions and the durability and safety characteristics of building elements and systems.

Technical Notes—Studies or reports which are complete in themselves but restrictive in their treatment of a subject. Analogous to monographs but not so comprehensive in scope or definitive in treatment of the subject area. Often serve as a vehicle for final reports of work performed at NIST under the sponsorship of other government agencies.

Voluntary Product Standards—Developed under procedures published by the Department of Commerce in Part 10, Title 15, of the Code of Federal Regulations. The standards establish nationally recognized requirements for products, and provide all concerned interests with a basis for common understanding of the characteristics of the products. NIST administers this program as a supplement to the activities of the private sector standardizing organizations.

Consumer Information Series—Practical information, based on NIST research and experience, covering areas of interest to the consumer. Easily understandable language and illustrations provide useful background knowledge for shopping in today's technological marketplace.

Order the above NIST publications from: Superintendent of Documents, Government Printing Office, Washington, DC 20402.

Order the following NIST publications—FIPS and NISTIRs—from the National Technical Information Service, Springfield, VA 22161.

Federal Information Processing Standards Publications (FIPS PUB)—Publications in this series collectively constitute the Federal Information Processing Standards Register. The Register serves as the official source of information in the Federal Government regarding standards issued by NIST pursuant to the Federal Property and Administrative Services Act of 1949 as amended, Public Law 89-306 (79 Stat. 1127), and as implemented by Executive Order 11717 (38 FR 12315, dated May 11, 1973) and Part 6 of Title 15 CFR (Code of Federal Regulations).

NIST Interagency Reports (NISTIR)—A special series of interim or final reports on work performed by NIST for outside sponsors (both government and non-government). In general, initial distribution is handled by the sponsor; public distribution is by the National Technical Information Service, Springfield, VA 22161, in paper copy or microfiche form.

U.S. Department of Commerce
National Institute of Standards and Technology
Gaithersburg, MD 20899

Official Business
Penalty for Private Use \$300

