

## METROLOGIST I

This is technical work in the certification of official and commercial measurement standards. Employee performs tests that determine mass, volume, and linear measurements by utilizing precision electronic balances, containers of known volume, and standards of known length traceable to national standards. Employee alters test weights to bring them into conformance with allowable tolerances and makes minor adjustments to meters or scales as necessary to bring them into conformance. Employee may conduct performance tests on meters and scales to determine accuracy. Employee assists the Metrologist II in determining the accuracy of precision laboratory or clinical thermometers. Work is performed under the general supervision of the Metrology Laboratory Manager and may include other duties as assigned.

### I. DIFFICULTY OF WORK:

Complexity - Employee performs a variety of tasks associated with verifying standards. Work includes performing tolerance verification and precision calibration of test weights, small volume calibration and tolerance verification, large volume calibration and tolerance verification, performing length tape calibrations and tolerance verifications and assists in liquid-in-glass and electronic thermometer calibration, to ensure traceability to national standards. Employee decides how many and what type of multiple comparisons and check comparisons between known standards and the weights being calibrated should be used to generate sufficient data. This data is reviewed and interpreted by the Metrologist II and transferred to a report of traceability which is issued to the client. Employee performs laboratory auditing problems which are required by the National Institute of Standards and Technology:

Guidelines - State guidelines and National Institute of Standards and Technology publications are specific to work performed and can be applied in most situations.

### II. RESPONSIBILITY:

Accountability - Employee performs tests in accordance with established procedures. Test results are reviewed by Metrologist II before traceability reports are issued. Employee confiscates standards (mass or volume) that are incapable of being repaired or corrected.

Consequence of Action - Failure to detect inaccurate standards or to accurately calibrate standards used by industry could result in significant loss through such things as misdosed medications or failure of critical components. Incorrect interpretation while measuring the State's inspection devices could lead to a significant monetary loss to the public and to the State.

Review - Employee conducts daily assignments independently. The reasonableness of the test results and the appropriateness of methods used are reviewed by the Metrologist II.

### III. INTERPERSONAL COMMUNICATIONS:

Subject Matter - Methods, techniques, procedures and instruments used in certification of commercial measurement standards and in testing meters and scales are accepted and commonplace to metrology personnel.

Purpose - Communications with industry representatives or departmental personnel are generally to provide information.

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IV. WORK ENVIRONMENT:

Nature of Working Conditions - Employee spends the majority of the time working in a climate-controlled laboratory. Field calibrations of test measures are performed outside the laboratory. .

Nature and Potential of Personal Hazards - Employee is exposed to accident risks while working with very heavy weights which must be moved by chain and cable hoists, and washing glassware in sodium dichromate sulfuric acid solution. When thermometer tests are performed, employee uses an oil bath heated to 300 degrees C.

V. RECRUITMENT STANDARDS:

Knowledges, Skills and Abilities - General knowledge of mathematics and the principles of statistics. Working knowledge of the laws and regulations related to standards of measurement. Working knowledge of metric and avoirdupois measuring systems and the mathematical principles involved in computing mass, volumes and linear measurements. Ability to follow detailed guidelines. Ability to communicate effectively with Standards Inspectors and industry personnel. Ability to complete written reports.

Minimum Training and Experience - Graduation from a four-year college or university with a major in math, physics or other related science; or an equivalent combination of training and experience.

Special Qualification - Ability to complete the basic metrology training course offered by the National Institute of Standards and Technology.