Designation: E 1212 – 99

Standard Practice for Quality Control Systems for Nondestructive Testing Agencies [1]

This standard is issued under the fixed designation E 1212; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers general requirements for the establishment and maintenance of a quality control system for agencies engaged in nondestructive testing (NDT).

1.2 This practice utilizes criteria contained in Practice E 543.

1.3 This practice utilizes criteria contained in ANSI/ASQC American National Standards Q90 Series.

1.4 This practice recognizes the importance of establishing minimum safety criteria.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

E 543 Practice for Agencies Performing Nondestructive Testing[2]

E 1359 Guide for Evaluating Capabilities of Nondestructive Testing Agencies[2]

2.2 *ASNT/ANSI Standards:*

SNT-TC-1A Recommended Practice for Personnel Qualification and Certification in Nondestructive Testing[3]

CP 189 Qualification and Certification of Nondestructive Testing Personnel[3]

2.3 *ANSI/ASQ American National Standards:*

A8402 Management and Quality Assurance-Vocabulary[4]

Q9000 Series of Quality Management and Quality Assurance (Q9000 through Q9004 inclusive) Standards (These are exact equivalents to the ISO 9000 through ISO 9004 series)

2.4 *AIA Standard:*

NAS 410 NAS Certification and Qualification of Nondestructive Testing Personnel[5]

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *agency*, *n*—the public, independent, or in-house nondestructive testing organization selected by the authority to perform the examination(s) required by the purchase order or specification.

3.1.2 *authority*, *n*—the owner, prime contractor, engineer, architect, or purchasing agent in responsible charge of the work, or duly recognized or designated representative.

3.1.3 *continuous quality improvement*, *n*—an ongoing quality improvement activity for achieving results. Improvement may be directed at individual processes, finished products, or administrative processes. The continuous quality improvement program utilizes statistical methods, team projects, and other tools as appropriate to obtain and sustain improvements.

3.1.4 *customer*, *n*—customer is used with the same meaning as "authority."

3.1.5 *process capability*, *n*—the degree to which a process can produce the same results without variation, that is, reproducibility.

3.1.6 *process control*, *n*—managing a process to ensure that it is performing to its designed capability.

3.1.7 *quality control system*, *n*—the organizational structure, responsibilities, practices, procedures, processes, and resources for implementing and maintaining the quality program.

3.1.8 *quality manual*, *n*—a comprehensive document stating the quality policy and specifying organizational structure, practices, and procedures necessary to empower the quality policy and quality control system.

3.1.9 *quality objectives*, *n*—specific obtainable improvement goals supporting the quality program.

3.1.10 *quality policy*, *n*—the overall intentions and direction of an organization regarding quality as formally expressed by top management.

[1] This practice is under the jurisdiction of ASTM Committee E-7 on Nondestructive Testing and is the direct responsibility of Subcommittee E07.09 on Nondestructive Testing Laboratories.

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[2] *Annual Book of ASTM Standards*, Vol 03.03.

[3] Available from the American Society for Nondestructive Testing, 1711 Arlingate Lane, Columbus, OH 43228-0518.

[4] Available from the American Society for Quality , 310 West Wisconsin Avenue, Milwaukee, WI 53203.

[5] Available from Aerospace Industries Association of America, 1250 Eye Street, NW, Suite 1200, Washington, DC 20005.

3.1.11 *quality records*, *n*—formal documentation of inspection results or data supporting the quality control system.

3.1.12 Examples are: audit reports, calibration data, NDT records, process qualification results, qualification data, and test data.

4. Significance and Use

4.1 This practice covers procedures for establishing and maintaining a quality system for nondestructive testing agencies.

4.2 Controlling the quality of service rendered is a continuing process. This practice provides guidelines for establishing a quality control system that provides for: calibration, standardization, reference samples, inspection plans, and procedures.

4.3 The basic requirements for a quality control system encompass the following areas, all of which shall be documented.

4.3.1 Quality policy statement, planning, and administration,

4.3.2 Organization,

4.3.3 Human resources,

4.3.4 Physical resources, and

4.3.5 Quality control.

5. Quality Policy Statement, Planning, and Administration

5.1 *Policy Statement*—A policy statement shall describe management's specific intention and policy with respect to quality. The policy statement should specify an organized approach for carrying out those intentions and should address itself to all major quality parameters. It should be approved by the chief executive officer for company-wide policies or by subordinate officers for specialized policies. Periodic audits should be required to ensure adherence to quality policies.

5.2 *Quality Objectives*—Objectives should be established for appropriate key elements of performance such as safety requirements, internal performance levels, vendor performance, training, and qualification of personnel.

5.3 *Quality Control System*—A quality control system shall be established that will carry out the stated policies and objectives.

5.4 *Quality Planning*—Planning for each new or modified process or test method should define those characteristics to be controlled.

5.5 *Quality Manual*—The quality policy and system shall be documented and be in accessible form, such as a quality manual or series of manuals. Key elements should include, as necessary:

5.5.1 The general quality statement,

5.5.2 A description of the quality system,

5.5.3 A general description of quality planing requirements with specifics for each product category where appropriate,

5.5.4 The requirements of Practice E 543 pertaining to the laboratory procedure manual, and

5.5.5 Typically used examination procedures.

5.6 *Administration*—Clear lines of authority shall be established to administer the quality control system.

5.6.1 *Quality Responsibility*—The quality responsibility of each unit within the organization shall be approved by the chief operation officer of each unit.

5.6.2 *Quality Performance Reporting*—Responsibility for reporting performance against stated quality objectives to higher management should rest with functions independent of those responsible for the attainment of those objectives. Procedures for documentation and record retention should be established.

5.6.3 *Quality System Audits*—To provide assurance, a periodic audit of the quality control system should be made by an organizational element independent of the unit being audited or by a qualified third party. It may include, as appropriate:

5.6.3.1 Management audits to determine how well quality policy and objectives are being met,

5.6.3.2 System audits, including testing process audits to determine how well quality planning has been implemented and to identify areas where changes would be beneficial to the quality services performed, and

5.6.3.3 Records documenting findings and corrective and preventive actions taken.

6. Organization

6.1 The following information concerning the organization of the agency shall be documented.

6.1.1 A description of the organization including:

6.1.1.1 The complete legal name and address of the main office,

6.1.1.2 The names and positions of the principal officers and directors,

6.1.1.3 The agency's ownership, managerial structure, and principal members,

6.1.1.4 The functional description of the agency's organizational structure, operational departments, and support departments and services. This may be demonstrated in the form of charts that depict all the divisions, departments, sections and units, and their relationships,

6.1.1.5 All relevant organizational affiliates of the agency and principal officers of affiliates and directors of affiliates where applicable,

6.1.1.6 External organizations and organizational components and their functions that are utilized for significant technical support services, and

6.1.1.7 A brief history of the agency including its relationship with its organizational component affiliations and other supporting information.

6.1.2 A listing of the relevant technical services offered.

6.1.3 A list giving applicable dates of qualifications and accreditations.

7. Human Resources

7.1 *General*—Those aspects of the quality system where the work of the employees will affect the quality of products shall be identified, and specific action taken to control them.

7.2 *Management Responsibilities*—The quality-related requirements, duties, and responsibilities of all personnel shall be identified. Job criteria that are quality-related should be specified in job descriptions to permit proper employee selection.