~~Designation:E1212–99~~ Designation: E 1212 – 04 (Reapproved 2008)

Standard Practice for Quality ~~Control~~Management 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~~management system for agencies engaged in nondestructive testing (NDT).

1.2 This practice utilizes criteria contained in Practice E 543.

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

1.3 This practice utilizes criteria contained in American National Standard ANSI/ISO/ASQ Q9001–2000, Quality management systems—Requirements.

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

1.5 *This ~~standard~~practice 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~~practice to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:* [2]

E 543~~Practice~~ Specification for Agencies Performing Nondestructive Testing

E 1359 Guide for Evaluating Capabilities of Nondestructive Testing Agencies

2.2 *ASNT/ANSI Standards:*

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

ASNT SNT-TC-1A Recommended Practice for Personnel Qualification and Certification in Nondestructive Testing

ANSI/ASNT CP 189 Qualification and Certification of Nondestructive Testing Personnel

2.3 ~~*ANSI/ASQ American National Standards:*~~ *ANSI/ASQ 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:~~Practice:*

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

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* ~~, Vol 03.03.~~volume information, refer to the standard's Document Summary page on the ASTM website.

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

[3] Available from American Society for Nondestructive Testing (ASNT), P.O. Box 28518, 1711 Arlingate Ln., Columbus, OH 43228-0518, http://www.asnt.org.

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

[4] Available from American Society for Quality (ASQ), 600 N. Plankinton Ave., Milwaukee, WI 53203, http://www.asq.org.

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

[5] Available from Aerospace Industries Association of America, Inc. (AIA), 1000 Wilson Blvd., Suite 1700, Arlington, VA 22209-3928, http://www.aia-aerospace.org.

duly recognized or designated representative.

3.1.3 ~~*continuous quality improvement*~~continual 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~~continual 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*~~quality management 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~~management 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.

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

3.1.1~~2~~1.1 *Discussion*—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~~management system that provides for: calibration, standardization, reference samples, ~~inspection~~examination plans, and procedures.

4.3 The basic requirements for a quality ~~control~~management 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

~~4.3.5Quality control.~~

4.3.5 Quality management.

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~~Management System*—A quality ~~control~~management 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.~~ —Planning for each new or modified process or test method should define those characteristics to be controlled. Quality planning also includes providing for administrative processes needed to implement compliance with this practice.

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 planning 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~~management 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~~management system should be made by an organizational element independent of the unit being audited or by a qualified third party to monitor the effectiveness of various quality management system processes. 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~~examination 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.

7.3 *Employee Selection and Training*— Employees shall be selected on the basis of capability and experience or the potential to fully qualify for the job. A training program shall be maintained to ensure employees develop and retain skill competence. Nondestructive testing (NDT) personnel shall be qualified in accordance with a nationally recognized NDT personnel qualification practice or standard such as ANSI/ASNT-CP-189, ASNT/SNT-TC-1A, AIA/NAS 410, or a similar document. The practice or standard used and the applicable revision shall be specified in the contractual agreement between the using parties.

7.4 The agency shall provide the following documentation:

7.4.1 A written outline or chart giving operational personnel positions and their lines of responsibility and authority, and

7.4.2 A summary job description for each professional, scientific, supervisory, and technical position category including the required education, training and experience, certification, or professional licenses.

7.5 The agency shall provide a description of its methods of maintaining personnel records to document the qualifications, work experience, and training history of each person in the positions described in 7.4.2. The agency shall also provide a description of its means of ensuring confidence in its human resources including the maintenance of records.

8. Physical Resources

8.1 The agency shall provide an inventory of its relevant physical resources including:

8.1.1 A general description of the agency's facilities for NDT related activities.

8.1.2 An inventory of equipment used to perform NDT including the following for each item of equipment:

8.1.2.1 Type of equipment and use,

8.1.2.2 Name of manufacturer,

8.1.2.3 The equipment model and serial number,

8.1.2.4 Properties of the equipment subject to standardization or calibration,

8.1.2.5 The range of operation and range of calibration,

8.1.2.6 Reference to a recognized calibration procedure,

8.1.2.7 Frequency of calibration, and

8.1.2.8 Allowable tolerances or maximum sensitivity.

8.1.3 A system of written procedures for each NDT service performed by the agency. The procedures shall include a description of the methods used for NDT and the methods used for data recording, data processing, data reporting, and for certification of the