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Standard Guide for Establishing Qualifications for a Nuclear Coatings Specialist[1]

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1. Scope

1.1 This guide delineates recommendations for development of procedures and criteria for designation of an individual as a Nuclear Coatings Specialist involved in coating work in nuclear facilities. The Nuclear Coatings Specialist is responsible for the technical aspects of the safety-related coatings program in a nuclear facility or organization, which includes establishing processes and quality control requirements.

1.2 This guide details the guidance provided in Guide D5144, and EPRI Report 1019157.

1.3 It is the intent of this guide to provide several alternatives for designation of personnel as Nuclear Coatings Specialists.

1.4 *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 requirements prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D4537 Guide for Establishing Procedures to Qualify and Certify Personnel Performing Coating and Lining Work Inspection in Nuclear Facilities

D4538 Terminology Relating to Protective Coating and Lining Work for Power Generation Facilities

D5144 Guide for Use of Protective Coating Standards in Nuclear Power Plants

2.2 *ANSI/ASME Codes and Standards:*[3]

ANSI/ASME N45.2.6 Qualifications of Inspection, Examination and Testing Personnel for Nuclear Power Plants

2.3 *Electric Power Research Institute (EPRI):*[4]

EPRI Report 1019157 Guidance on Nuclear Safety-Related Coatings, Revision 2 (formerly TR-109937 and 1003102), December 2009

2.4 *Code of Federal Regulations (CFR):*[5]

10CFR21 Reporting of Defects and Nonconformance

10CFR50.59 Changes, Tests and Experiments

3. Terminology

3.1 *Definitions*—Definitions for use with this standard are shown in Terminology D4538 or other applicable standards.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *safety-related coatings program, n*—the systematic and planned activities conducted at a nuclear power plant to ensure that the safety-related coatings and linings perform all of their design functions.

4. Significance and Use

4.1 This guide applies to personnel technically responsible for the safety-related coatings program.

4.2 It is the responsibility of each nuclear facility or organization participating in a safety-related coatings program to ensure that only those personnel within their respective organizations who meet the requirements of this guide are designated as Nuclear Coatings Specialists.

5. General Duties and Responsibilities of a Nuclear Coatings Specialist

5.1 The duties of a Nuclear Coatings Specialist should be detailed in the facility safety-related coatings program and typically may include, but are not limited to:

5.1.1 Developing and managing the safety-related coatings program,

5.1.2 Developing and maintaining coatings and linings inspection criteria,

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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* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

[4] Available from Electric Power Research Institute, 3420 Hillview Ave., Palo Alto, CA 94304, http://www.epri.com.

[5] Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, http://www.access.gpo.gov.

5.1.3 Resolving and dispositioning issues that arise during the performance of coating and lining work,

5.1.4 Performing or evaluating condition assessment data, or both, generating written assessment reports, and initiating the appropriate corrective actions,

5.1.5 Approving personnel performing coatings and linings inspections (ensuring that coatings and linings inspection is performed in accordance with the facility's or organization's Quality Assurance Program),

5.1.6 Supplying input for maintaining the design bases for safety-related coatings and linings, including preparation and maintenance of coating system specifications and reviewing/approving process (application) and test procedures, results, and reports,

5.1.7 Reviewing or approving application procedures, or both, and, as necessary, preparing or assisting in their preparation, and review,

5.1.8 Preparing, or assisting in the preparation of, design and other evaluations (such as 10CFR21, 10CFR50.59) associated with specific coating and lining systems and resolution of related issues,

5.1.9 Assisting the licensing organization with coatings/linings-related Safety Analysis Report updates,

5.1.10 Assisting with the evaluation of unqualified coatings considering plant-specific, safety-related systems design bases,

5.1.11 Preparing or assisting in the preparation of training manuals and examinations required in conjunction with the facility's or organization's applicator certification program, presenting training sessions, and grading any exams,

5.1.12 Preparing and presenting training (to the extent required) in conjunction with the certification process for personnel performing safety-related coatings and linings inspection. This may entail assisting the facility's or organization's QA/QC and/or training organizations,

5.1.13 Evaluating candidate applicators' proficiency, and

5.1.14 Evaluating coating and lining failures and nonconforming conditions in accordance with the facility's or organization's approved Quality Assurance Program.

6. Education, Training and Experience Qualifications

6.1 Each nuclear facility or organization should develop specific qualification criteria for qualification of Nuclear Coatings Specialists. The criteria ultimately developed and included in each facility's or organization's safety-related coatings program must be a combination of attributes including education, professional achievement, nuclear coatings and linings experience and ongoing participation in nuclear coatings and linings technology. Demonstration of professional achievements (experience) can be one or more of the following:

National Board of Registration (NBR) for Nuclear Safety-Related Coatings Specialists

Board of International Registration for Nuclear Coating Specialists (BIRNCS)

SSPC Certified Protective Coatings Specialist

NACE Certified Coatings Inspector

NACE Certified Protective Coatings Specialist

Certified as having successfully completed a recognized program in coatings technology (such as the EPRI Comprehensive Coatings Training Course)

Registered Professional Engineer

Certified to Perform Coating Inspection per Guide D4537, Level III

ASQ Quality Engineer

ANSI N45.2.6 Level III Inspector

6.1.1 The qualification criteria should be definitive with respect to the extent and currency of the Nuclear Coating Specialist's experience and training.

6.2 Table 1 is a matrix that provides examples of combinations of qualification attributes for a Nuclear Coatings Specialist. In general, a higher level of education and/or more professional achievements can be used to compensate a lesser amount of nuclear coatings experience. On the other hand, a larger amount of nuclear coatings experience is necessary for individuals possessing less formal education or professional achievements. Combinations other than those listed in Table 1 may be considered. Each facility or organization should ensure that the qualifications established for a Nuclear Coating Specialist meet the applicable licensing commitments and are accurately described in the appropriate procedures.

7. Maintenance of Qualification

7.1 Nuclear Coatings Specialists should demonstrate significant, continuing involvement in the nuclear coatings

TABLE 1 Examples of Combined Nuclear Coatings Specialist's Qualifications

Education	Professional Achievements	Nuclear Coatings Experience
Accredited Four-year Engineering/Science degree	Coatings Training (Note 1)	Three years related equivalent (Note 4)
Accredited Two-year Associate degree	Coatings Training (Note 1)	Five years related equivalent (Note 4)
High School Graduate	Coatings Training (Note 1)	Seven years related equivalent (Note 4)
SSPC/NACE or other industry recognized coatings Specialist/Inspector certification	(Note 2)	Three years related equivalent (Note 4)
National Board of Registration (NBR) for Nuclear Safety-Related Coatings Specialists	(Note 3)	(Note 3)
Board of International Registration for Nuclear Coating Specialists (BIRNCS)	(Note 3)	(Note 3)

NOTE 1—SSPC, NACE or other documented coating specialist/inspector training. The EPRI Comprehensive Coatings Training Course and NACE Nuclear Power Plant Training for Coating Inspectors Course address the specific education requirements for nuclear coatings personnel.

NOTE 2—Appropriate levels of formal education and training are integral to obtaining this type of certification and, as such, are not shown on this table.

NOTE 3—Appropriate levels of formal education, training and nuclear experience are integral to obtaining this type of certification and, as such, are not shown on this table.

NOTE 4—Credit for "related equivalent" experience in coating and lining work other than nuclear coatings and linings shall be limited to one year total.

industry. Such involvement is demonstrated through continuing education and professional work experience.

7.2 At the end of each 4-year interval after designation of an individual as a Nuclear Coatings Specialist, the individual should submit any two of the following types of information for review and filing by the individual's supervisor:

7.2.1 Evidence demonstrating substantial and continuing on-the-job involvement as a Nuclear Coatings Specialist,

7.2.2 References from either a supervisor or peer that document that the individual has performed the duties of a Nuclear Coating Specialist satisfactorily, or,

7.2.3 Evidence of having attended coatings training courses or symposia, actively participated in coatings technical society work related to nuclear safety-related coatings and linings, or published technical papers and/or articles related to nuclear safety-related coatings and linings.

8. Records

8.1 A personnel qualification record file should be established and maintained by each nuclear facility or organization to document the education, training and experience of Nuclear Coatings Specialists. Collection, storage and control of records required by this guide shall be in accordance with the requirements of the nuclear facility or organization.

9. Keywords

9.1 coatings specialist; nuclear coatings specialist; safety-related coatings; safety-related coatings program; safety-related linings