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Standard Guide for Developing a Training Program for Personnel Performing Coating and Lining Work Inspection for Nuclear Facilities¹

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1. Scope

1.1 This guide is intended to assist those responsible for developing a program for the indoctrination and training of personnel performing coating and lining inspection work for nuclear facilities.

1.2 It is recognized that organizations and job responsibilities vary widely among utilities and also among various support and service companies. It is the responsibility of the user of this guide to identify the appropriate subject matter for its program and its specific needs.

1.3 Users of this guide must ensure that coating and lining work complies not only with this guide, but also with the licensee's plant-specific quality assurance program and licensing commitments.

2. Referenced Documents

2.1 ASTM Standards:²

- D16 Terminology for Paint, Related Coatings, Materials, and Applications
- D610 Practice for Evaluating Degree of Rusting on Painted Steel Surfaces
- D714 Test Method for Evaluating Degree of Blistering of Paints
- D1005 Test Method for Measurement of Dry-Film Thickness of Organic Coatings Using Micrometers
- D2240 Test Method for Rubber Property—Durometer Hardness
- D2583 Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor
- D3276 Guide for Painting Inspectors (Metal Substrates)
- D3359 Test Methods for Measuring Adhesion by Tape Test
- D3363 Test Method for Film Hardness by Pencil Test

¹ This guide is under the jurisdiction of ASTM Committee D33 on Protective Coating and Lining Work for Power Generation Facilities and is the direct responsibility of Subcommittee D33.04 on Quality Systems and Inspection.

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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.

- D3843 Practice for Quality Assurance for Protective Coatings Applied to Nuclear Facilities
- D3925 Practice for Sampling Liquid Paints and Related Pigmented Coatings
- D4138 Practices for Measurement of Dry Film Thickness of Protective Coating Systems by Destructive, Cross-Sectioning Means
- D4212 Test Method for Viscosity by Dip-Type Viscosity Cups
- D4214 Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films
- D4258 Practice for Surface Cleaning Concrete for Coating
- D4259 Practice for Abrading Concrete
- D4260 Practice for Liquid and Gelled Acid Etching of Concrete
- D4261 Practice for Surface Cleaning Concrete Masonry Units for Coating
- D4262 Test Method for pH of Chemically Cleaned or Etched Concrete Surfaces
- D4263 Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method
- D4285 Test Method for Indicating Oil or Water in Compressed Air
- D4414 Practice for Measurement of Wet Film Thickness by Notch Gages
- D4417 Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel
- 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
- D4541 Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
- D4610 Guide for Determining the Presence of and Removing Microbial (Fungal or Algal) Growth on Paint and Related Coatings
- D4752 Practice for Measuring MEK Resistance of Ethyl Silicate (Inorganic) Zinc-Rich Primers by Solvent Rub
- D4787 Practice for Continuity Verification of Liquid or Sheet Linings Applied to Concrete Substrates

- D4940 Test Method for Conductimetric Analysis of Water Soluble Ionic Contamination of Blasting Abrasives
- D5144 Guide for Use of Protective Coating Standards in Nuclear Power Plants
- D5162 Practice for Discontinuity (Holiday) Testing of Non-conductive Protective Coating on Metallic Substrates
- D5163 Guide for Establishing a Program for Condition Assessment of Coating Service Level I Coating Systems in Nuclear Power Plants
- D5402 Practice for Assessing the Solvent Resistance of Organic Coatings Using Solvent Rubs
- D6132 Test Method for Nondestructive Measurement of Dry Film Thickness of Applied Organic Coatings Using an Ultrasonic Gage
- D6237 Guide for Painting Inspectors (Concrete and Masonry Substrates)
- D6386 Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting
- D6677 Test Method for Evaluating Adhesion by Knife
- D7091 Practice for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to Ferrous Metals and Nonmagnetic, Nonconductive Coatings Applied to Non-Ferrous Metals
- D7167 Guide for Establishing Procedures to Monitor the Performance of Safety-Related Coating Service Level III Lining Systems in an Operating Nuclear Power Plant
- D7234 Test Method for Pull-Off Adhesion Strength of Coatings on Concrete Using Portable Pull-Off Adhesion Testers
- D7682 Test Method for Replication and Measurement of Concrete Surface Profiles Using Replica Putty
- E337 Test Method for Measuring Humidity with a Psychrometer (the Measurement of Wet- and Dry-Bulb Temperatures)
- F1869 Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
- F2170 Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
- G12 Test Method for Nondestructive Measurement of Film Thickness of Pipeline Coatings on Steel
- G62 Test Methods for Holiday Detection in Pipeline Coatings
- 2.2 *ASME Codes and Standards:*³
ASME Boiler and Pressure Vessel Code, Section XI Rules for Inservice Inspection of Nuclear Power Plant Components
- 2.3 *International Organization for Standardization (ISO):*⁴
ISO 8502–03 Preparation of Steel Substrates before Application of Paint and Related Products — Tests for the Assessment of Surface Cleanliness — Part 3: Assessment of Dust on Steel Surfaces Prepared for Painting (Pressure-Sensitive Tape Method)
- 2.4 *SSPC: The Society for Protective Coatings Standards:*⁵
SSPC-AB 1 Mineral and Slab Abrasives
SSPC-AB 2 Cleanliness of Recycled Ferrous Metallic Abrasive
SSPC-AB 3 Ferrous Metallic Abrasive
SSPC-AB 4 Recyclable Encapsulated Abrasive Media
SSPC Guide 15 Field Methods for Retrieval and Analysis of Soluble Salts on Steel and Other Nonporous Substrates
SSPC-PA1 Shop, Field and Maintenance Painting of Steel
SSPC-PA2 Measurement of Dry Paint Thickness with Magnetic Gage
SSPC-PA 9 Measurement of Dry Coating Thickness on Cementitious Substrates Using Ultrasonic Gages
SSPC-PA 10 Guide to Safety and Health Requirements for Industrial Painting Projects
SSPC-PA Guide 11 Protecting Edges, Crevices, and Irregular Steel Surfaced by Stripe Coating
SSPC-SP 1 Solvent Cleaning
SSPC-SP 2 Hand Tool Cleaning
SSPC-SP 3 Power Tool Cleaning
SSPC-SP 5/NACE No. 1 White Metal Blast Cleaning
SSPC-SP 6/NACE No. 3 Commercial Blast Cleaning
SSPC-SP 7/NACE No. 4 Brush-Off Blast Cleaning
SSPC-SP 8 Pickling
SSPC-SP 10/NACE No. 2 Near-White Blast Cleaning
SSPC-SP 11 Power Tool Cleaning to Bare Metal
SSPC-SP 13/NACE No. 6 Surface Preparation of Concrete
SSPC-SP 14/NACE No. 8 Industrial Blast Cleaning
SSPC-SP 15 Commercial Grade Power Tool Cleaning
SSPC-SP 16 Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals
SSPC-VIS 1 Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning
SSPC-VIS 2 Method of Evaluating Degree of Rusting on Painted Steel Surfaces
SSPC-VIS 3 Guide and Reference Photographs for Steel Surfaces Prepared by Hand and Power Tool Cleaning
SSPC-VIS 4/NACE VIS 7 Guide and Reference Photographs for Steel Surfaces Prepared by Waterjetting
SSPC-VIS 5/NACE VIS 9 Guide and Reference Photographs for Steel Surfaces Prepared by Wet Abrasive Blast Cleaning
SSPC-SP WJ 1/NACE WJ-1 Clean to Bare Substrate
SSPC-SP WJ 2/NACE WJ-2 Very Thorough Cleaning
SSPC-SP WJ 3/NACE WJ-3 Thorough Cleaning
SSPC-SP WJ 4/NACE WJ-4 Light Cleaning
- 2.5 *Federal Standards:*⁶
10 CFR 50 Appendix B Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants
10 CFR 21 Reporting of Defects and Noncompliance

³ Available from American Society of Mechanical Engineers (ASME), ASME International Headquarters, Three Park Ave., New York, NY 10016-5990, <http://www.asme.org>.

⁴ Available from International Organization for Standardization (ISO), 1, ch. de la Voie-Creuse, Case postale 56, CH-1211, Geneva 20, Switzerland, <http://www.iso.ch>.

⁵ Available from Society for Protective Coatings (SSPC), 40 24th St., 6th Floor, Pittsburgh, PA 15222-4656, <http://www.sspc.org>.

⁶ 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>.