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Standard Guide for Maintaining Unqualified Coatings (Paints) Within Level I Areas of a Nuclear Power Facility¹

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1. Scope

1.1 This guide is intended to assist the maintenance engineer in the preparation of a specification or work instruction for re-coating items that are presently coated with what is known within the nuclear power industry as an “unqualified coating.”

2. Referenced Documents

2.1 ASTM Standards:

D 610 Test Method for Evaluating Degree of Rusting on Painted Steel Surfaces²

D 714 Test Method for Evaluating Degree of Blistering of Paints³

D 772 Test Method for Evaluating Degree of Flaking (Scaling) of Exterior Paints³

D 1186 Test Methods for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to a Ferrous Metal Base³

D 3359 Test Methods for Measuring Adhesion by Tape Test³

D 4227 Practice for Qualification of Coating Applicators for Application of Coatings to Concrete Surfaces²

D 4228 Practice for Qualification of Coating Applicators for Application of Coatings to Steel Surfaces²

D 4537 Guide for Establishing Procedures to Qualify and Certify Inspection Personnel for Coating Work in Nuclear Facilities²

D 4541 Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers²

2.2 Other Standards:

SSPC-SP 1 Solvent Cleaning Issued by Steel Structure Painting Council⁴

SSPC-SP 3 Power Tool Cleaning Issued by Steel Structures Painting Council⁴

¹ This guide is under the jurisdiction of ASTM Committee D-33 on Protective Coating and Lining Work for Power Generation Facilities and is the direct responsibility of Subcommittee D33.10 on Protective Coatings Maintenance Work for Power Generation Facilities.

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² Annual Book of ASTM Standards, Vol 06.02.

³ Annual Book of ASTM Standards, Vol 06.01.

⁴ Available from Steel Structure Painting Council, 4516 Henry Street, Suite 301, Pittsburgh, PA 15213-3728.

SSPC-SP 11 Power Tool Cleaning to Bare Metal as Issued by Steel Structures Painting Council⁴

3. Terminology

3.1 Definitions:

3.1.1 *unqualified coating or paint*—a coating or coating system that cannot be attested to having passed the required laboratory testing, including irradiation and simulated Design Basis Accident (DBA) or lacks adequate quality documentation to support its use as qualified.

3.1.2 *design basis accident (DBA)*—a generic term for any one of a family of accident conditions that can result from postulated events.

3.1.2.1 *Discussion*—These conditions are generally associated with the rupture of high energy piping. The most commonly recognized accident conditions used to evaluate coating systems for primary containment, are the LOCA or Main Steam Pipe Break.

3.1.3 *LOCA*—loss of coolant accident.

3.1.4 *SAR*—(Safety Analysis Report) the document of a nuclear power plant that maintains licensability.

4. Summary of Guide

4.1 This guide is summarized in Table 1, which shows the steps in the recoating sequence necessary for adequate protection of an unqualified coated item.

4.2 In order to use this guide, conditions such as temperature, relative humidity, etc. under which the new coating must perform during normal operating conditions must be known and considered.

5. Significance and Use

5.1 There are different methods for maintaining unqualified coatings in an operating nuclear power plant. This guide outlines a method that has been found to be acceptable to the industry and, when followed, will not affect the safety of the nuclear plant.

5.2 There are several prerequisites prior to any coating work in coating service Level 1 areas (Quality Class 1). They are as follows: