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Standard Guide for Assessing the Condition of Aged Coatings on Steel Surfaces¹

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1. Scope

1.1 This guide describes general procedures for conducting a detailed assessment of the condition of aged coatings on steel structures and the extent of rust breakthrough of the coated surface. Additional assessment may be required to support coating failure analyses or other job specific needs.

1.2 This guide does not address the problem of determining the structural condition of a steel substrate. It provides procedures to determine the percent of the surface rusted, but not the severity, condition, or cause of such rusting.

NOTE 1—A more comprehensive condition assessment procedure, Practice F1130, has been developed for determining the condition of coatings on a ship.

1.3 *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:²

- D610 Practice for Evaluating Degree of Rusting on Painted Steel Surfaces
- D660 Test Method for Evaluating Degree of Checking of Exterior Paints
- D714 Test Method for Evaluating Degree of Blistering of Paints
- D3359 Test Methods for Measuring Adhesion by Tape Test
- D4214 Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films
- D4541 Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers

¹ This guide is under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.46 on Industrial Protective Coatings.

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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.

- D5702 Practice for Field Sampling of Coating Films for Analysis for Heavy Metals
- D6206 Practice for Sampling of Coating Films
- 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
- F1130 Practice for Inspecting the Coating System of a Ship
- 2.2 *Steel Structures Painting Council Standard*:³
- SSPC-PA-2 Measurement of Dry Paint Thickness with Magnetic Gages

3. Summary of Practice

3.1 This practice for assessing the condition of coatings consists of identifying general types of components of a structure and assessing each separately for commonly occurring modes of coating deterioration and rust breakthrough of the coating using visual standards and simple evaluation tools. A form for recording the results of the assessment procedure (Fig. 1) is provided.

4. Significance and Use

4.1 Assessment of the condition of aged coated surfaces strengthens decisions on when coating maintenance is required, aids in the selection of effective coating maintenance procedures, and provides a means to characterize performance of coating systems.

5. Procedure

5.1 Survey the structure to (1) determine the general types of unique components (for example, for fuel tanks the components may be shell, roof, ladders, and piping) and the service exposure environment for each, (2) visually identify areas having a typical level of coating deterioration and rust breakthrough for each component and (3) identify areas having a much greater visual level of deterioration than typical and unique environmental conditions that may correspond to these areas (for example, bridge expansion joints). Record a description of the components and their general environment on an

³ Available from Society for Protective Coatings (SSPC), 40 24th St., 6th Floor, Pittsburgh, PA 15222-4656, <http://www.sspc.org>.