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Standard Guide for Corrosion-Related Failure Analysis¹

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1. Scope

1.1 This guide covers key issues to be considered when examining metallic failures when corrosion is suspected as either a major or minor causative factor.

1.2 Corrosion-related failures could include one or more of the following: change in surface appearance (for example, tarnish, rust, color change), pin hole leak, catastrophic structural failure (for example, collapse, explosive rupture, implosive rupture, cracking), weld failure, loss of electrical continuity, and loss of functionality (for example, seizure, galling, spalling, swelling).

1.3 Issues covered include overall failure site conditions, operating conditions at the time of failure, history of equipment and its operation, corrosion product sampling, environmental sampling, metallurgical and electrochemical factors, morphology (mode) or failure, and by considering the preceding, deducing the cause(s) of corrosion failure.

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 limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

E 3 Methods of Preparation of Metallographic Specimens²

¹ This guide is under the jurisdiction of ASTM Committee ~~G-1~~ G01 on Corrosion of Metals and is the direct responsibility of Subcommittee G01.05 on Laboratory Corrosion Tests.

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