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Atmospheric Above Grade Inspection and Assessment of Corrosion on Steel Electrical Transmission, Distribution, and Substation Structures

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ABSTRACT

There are an estimated 900,000 electric utility steel transmission and distribution structures in North America alone. The majority of these structures were installed between 1950 and 1990. These structures are now at an average of about 45 years of age. The age of these structures dictates an inspection and assessment procedure to determine the level of corrosion affecting the above-grade atmospherically exposed portions of this important segment of our infrastructure.

Prior to the publication of this standard, no industry practice existed to help electric utilities determine a prioritized listing of structures to be inspected or that described an inspection and assessment procedure to evaluate above-grade atmospheric corrosion problems.

This standard is intended for use by electric utility personnel, contractors, inspectors, and those interested in the impact of corrosion on the above-grade sections of transmission, distribution, and substation steel structures. It provides requirements to: (1) help utilities identify structures that may be at a high risk for above-grade corrosion; (2) inspect the selected structures; (3) categorize the condition of structures based on corrosion degradation; (4) prioritize structures requiring additional inspection based on those findings; and (5) help identify next steps as required.

This standard is limited to the inspection and assessment of steel transmission towers, poles, distribution poles, and substation structures, including galvanized and painted mild steel structures, as well as other similar structures.

KEYWORDS

Transmission and distribution structure, above-grade corrosion, atmospherically exposed, steel transmission tower, distribution pole, substation structure, field inspection, TG 529.

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Foreword

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This standard was prepared in 2020 by NACE/IEEE joint Task Group (TG) 529, "Atmospheric Inspection and Assessment of Corrosion on Electrical Steel Transmission, Distribution, and Substation Structures," which is administered by Specific Technology Group (STG) 41, "Electric Utility Generation, Transmission, and Distribution." The task group included members of IEEE. This standard is published by NACE under the auspices of STG 41 and by IEEE's Corrosion Working Group 12: Power and Energy Society/Transmission and Distribution (PE/T&D/TPC–Corrosion).

In NACE and IEEE standards, the terms ***shall, must, should,*** and ***may*** are used in accordance with the definitions of these terms in the *NACE Publications Style Manual* and the *IEEE-SA Standards Style Manual*. The terms ***shall*** and ***must*** are used to state a requirement, and are considered mandatory. The term ***should*** is used to state something good and is recommended, but is not considered mandatory. The term ***may*** is used to state something considered optional.

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