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Impressed Current Cathodic Protection of Internal Submerged Surfaces of Carbon Steel Water Storage Tanks

ABSTRACT

Presents procedures and practices used in providing impressed current cathodic protection to the normally submerged steel surfaces inside water storage tanks. Provides recommendations for the design and installation of cathodic protection systems and methods for determining the effectiveness of these systems.

KEYWORDS

anode, cathodic protection, impressed current cathodic protection, ICCP, coatings, reference electrode, storage tanks, water storage tanks, TG 167

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Foreword

In NACE standards, the terms "shall," "must," "should," and "may" are used in accordance with the definitions of these terms in the NACE Publications 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.

The purpose of this NACE standard is to present the recommended practices for providing impressed current cathodic protection (ICCP) to the submerged steel surfaces inside water storage tanks. It contains recommendations for the design and installation of these cathodic protection (CP) systems and methods for determining the effectiveness of these systems. Recommendations for the operation and maintenance of both automatic and manual systems are provided. This standard is applicable to relatively large water storage tanks used in municipal water supply and fire protection, including elevated and on-grade tanks. Although the general principles outlined in this standard are applicable to all such tanks, the ICCP system described in this standard may not be practical for smaller tanks. It may be more economical to protect these tanks with galvanic anode cathodic protection. This standard is intended for use by engineers, water utilities, tank erectors and other contractors, and owner operators of steel water storage tanks.

This standard was originally prepared in 1988 by Task Group T-7L-1, a component of Unit Committee T-7L, "Cathodic Protection." The task group was composed of corrosion engineers and others experienced in the design, installation, and maintenance of impressed current cathodic protection systems for water storage tanks. It was reaffirmed by T-7L in 1990 and 1995, revised in 2001 by Task Group (TG) 167 (formerly T-7L-14), then titled "Revision of NACE SP0388-1995," reaffirmed by Specific Technology Group (STG) 05 "Cathodic/Anodic Protection" in 2007 and 2014, and revised by TG 167, "ICCP of Internal Submerged Surfaces of Steel Water Storage Tanks," in 2018. TG 167 is administered by STG 05. This standard is issued by NACE International under the auspices of STG 05.

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