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Standard Practice

Stress Corrosion Cracking (SCC) Direct Assessment Methodology

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Foreword

Stress corrosion cracking direct assessment (SCCDA) is a structured process that is intended to assist pipeline companies in assessing the extent of stress corrosion cracking (SCC) on a section of buried pipeline and thus contribute to their efforts to improve safety by reducing the impact of external SCC on pipeline integrity.

Primary guidance for managing the integrity of a natural gas pipeline that has a risk of containing stress corrosion cracks is provided in Part A3 of ASME[(1)] B31.8S.1[1] which identifies several options for assessment and mitigation. Additional guidance for management of the integrity of natural gas and liquid petroleum pipelines subject to near-neutral-pH SCC is provided in the CEPA[(2)] Stress Corrosion Cracking Recommended Practices.[2] When applying guidance found in these documents to liquids pipelines, the potential for fatigue and/or corrosion fatigue must be considered in order to establish appropriate assessment intervals and mitigation activities.

The standard practice for SCCDA presented in this standard addresses the situation in which a pipeline company has identified a portion of its pipeline as an area of interest with respect to SCC based on its history, operations, and risk assessment process and has decided that direct assessment is an appropriate approach for integrity assessment. This standard provides guidance for managing SCC by selecting potential pipeline segments, selecting dig sites within those segments, inspecting the pipe, collecting and analyzing data during the dig, establishing a mitigation program, defining the reevaluation interval, and evaluating the effectiveness of the SCCDA process.

This standard practice is intended for use by pipeline operators and others who must manage pipeline integrity for the threat of SCC. SCCDA as described in this standard is specifically intended to address buried onshore petroleum (natural gas, crude oil, and refined products) production, transmission, and distribution pipelines constructed from line pipe steels. Users of this standard must be familiar with all applicable pipeline safety regulations for the jurisdiction in which the pipeline operates. This includes all regulations requiring specific pipeline integrity assessment practices and programs.

This standard was originally prepared in 2004 by NACE Task Group (TG) 273, "Stress Corrosion Cracking Direct Assessment, External," which is administered by Specific Technology Group (STG) 35, "Pipelines, Tanks, and Well Casings." It was reaffirmed in 2008 by STG 35 and revised in 2015 by TG 273. This standard is issued by NACE under the auspices of STG 35.

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.

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(2) Canadian Energy Pipeline Association (CEPA), Suite 200, 505-3rd St. SW Calgary, Alberta T2P 3E6 Canada.

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