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Effectiveness of Cathodic Protection on Thermally Insulated Underground Metallic Structures

ABSTRACT

The present trend in establishing an effective level of external metallic surface corrosion control is the application of a barrier coating or adhesive on the metallic surface prior to the application of a thermal insulating material. Experience has shown that there is generally a limited beneficial effect from the application of cathodic protection (CP) to a bare or ineffectively coated metallic surface under thermal insulation.

This NACE technical committee report was prepared as an information guide for external corrosion control of thermally insulated underground metallic surfaces and considerations of the effectiveness of CP.

KEYWORDS

Cathodic protection, underground, thermally insulated.

Foreword

The present trend in establishing an effective level of external metallic surface corrosion control is the application of a barrier coating or adhesive on the metallic surface prior to the application of a thermal insulating material. Experience has shown that there is generally a limited beneficial effect from the application of cathodic protection (CP) to a bare or ineffectively coated metallic surface under thermal insulation.

This NACE technical committee report was prepared as an information guide for external corrosion control of thermally insulated underground metallic surfaces and considerations of the effectiveness of CP. This report is intended for those dealing with thermally insulated structures or pipelines.

This report was included as Appendix O of the May 2016 US DOT PHMSA Failure Investigation Report Plains Pipeline, LP Line 901 Crude Oil Release, May 19, 2015, Santa Barabara, California.

Although pipelines are the primary focus of this report, the principles discussed would be applicable when a thermal insulating material has been applied on or in the immediate proximity of an underground metallic surface. This report was originally prepared in 1992 by NACE Task Group (TG) T 10A 19, a component of Unit Committee T-10A on Cathodic Protection and was reaffirmed with editorial changes in 2006 and 2018 by Specific Technology Group (STG) 35* on Pipelines, Tanks, and Well Casings. It is published 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.

* Chair Paul R. Nichols, Shell Global Solutions, Houston, Texas.

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