Cathodic Protection of Aboveground Petroleum Storage Tanks

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Suggested revisions are invited and should be submitted to the Standards Department, API, 1220 L Street, NW, Washington, DC 20005, standards@api.org.

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Persons planning to construct an aboveground storage facility, replace existing aboveground storage tanks and associated piping systems, or cathodically protect existing aboveground storage tanks and associated piping should refer to applicable local, state, and federal fire, safety, and environmental regulations as well as the most recent edition of the following publications:

— API Standard 650;

— API Recommended Practice 652;

— API Standard 653;

— API Specification 12B;

— API Specification 12D;

— API Specification 12F;

— API Standard 2610;

— AMPP SP0193;

— AMPP SP0285;

— NFPA[1] 30;

— NFPA 70; and,

— PEI[2] RP200.

The appropriate government authority having jurisdiction should be consulted for regulations that apply to the area of installation prior to taking any action suggested in this recommended practice (RP).

[1] National Fire Protection Association, 1 Batterymarch Park, Quincy, Massachusetts 02169-7471, www.nfpa.org.

[2] Petroleum Equipment Institute, P.O. Box 2380, Tulsa, Oklahoma 74101-2380. www.pei.org.

Cathodic Protection of Aboveground Petroleum Storage Tanks

1 Scope

1.1 The purpose of this RP is to present procedures and practices for achieving effective corrosion control on aboveground storage tank carbon steel bottoms using cathodic protection. This RP contains provisions for the application of cathodic protection to existing and new aboveground storage tanks. Corrosion control methods based on chemical control of the environment, or the use of protective coatings are not covered in detail.

1.2 When cathodic protection is used for aboveground storage tank applications, it is the intent of this RP to provide information and guidance specific to aboveground metallic storage tanks in hydrocarbon service. Certain practices recommended herein may also be applicable to tanks in other services. It is intended to serve only as a guide to people interested in cathodic protection. Specific cathodic protection designs are not provided. Such designs should be developed by a person thoroughly familiar with cathodic protection practices for aboveground petroleum storage tanks.

1.3 This RP does not designate specific practices for every situation because the varied conditions in which tank bottoms are installed preclude standardization of cathodic protection practices.

2 Normative References

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any addenda) applies.

API Recommended Practice 575, *Inspection of Atmospheric and Low-Pressure Storage Tanks*

API Recommended Practice 652, *Lining of Aboveground Petroleum Storage Tank Bottoms*

API Standard 653, *Tank Inspection, Repair, Alteration, and Reconstruction*

API Technical Report 655, *Vapor Corrosion Inhibitors for Storage Tanks*

API Recommended Practice 2003, *Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents*

API Standard 2610, *Design, Construction, Operation, Maintenance and Inspection of Terminal and Tank Facilities*

ASTM C144, [3] *Standard Specification for Aggregate for Masonry Mortar*

ASTM C778, *Standard Specification for Standard Sand*

ASTM D512, *Standard Test Methods for Chloride Ion in Water*

ASTM D516, *Standard Test Method for Sulfate Ion in Water*

ASTM D1557, *Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2700 kN-m/m^3))*

ASTM G51, *Standard Test Method for Measuring pH of Soil for Use in Corrosion Testing*

ASTM G57-06, *Method for Field Measurement of Soil Resistivity Using the Wenner Four-Electrode Method*

[3] ASTM International, 100 Bar Harbor Drive, West Conshohocken, Pennsylvania 19428, www.astm.org.