THE INSTITUTE OF PETROLEUM

GUIDANCE ON EXTERNAL CATHODIC PROTECTION OF UNDERGROUND STEEL STORAGE TANKS AND STEEL PIPEWORK AT PETROL FILLING STATIONS

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FOREWORD

This publication has been produced by the Institute of Petroleum's Service Station Panel to provide guidance to those involved in the design, construction, operation and maintenance of petrol filling stations on the safe and effective use of cathodic protection to prevent the external corrosion of underground steel storage tanks and associated steel pipework. The guidance in this publication has been prepared to specifically address the use of cathodic protection with the earthing arrangements found at petrol filling stations in the UK.

Although it is hoped and anticipated that this publication will assist those involved in the provision of cathodic protection systems for petrol filling station and the operation of such sites, the Institute of Petroleum cannot accept any responsibility, of whatever kind, for damage or loss, or alleged damage or loss, arising or otherwise occurring as a result of the application of the guidance contained herein.

Suggested revisions are invited and should be submitted to the Technical Department, Institute of Petroleum, 61 New Cavendish Street, London W1G 7AR, UK.

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INTRODUCTION AND SCOPE

This publication has been prepared principally to provide information for those involved in the design, construction, operation and maintenance of petrol filling stations (PFSs) on the safe and effective use of cathodic protection (CP) to prevent the external corrosion of underground steel storage tanks and associated steel pipework. In addition it is anticipated that this guidance will also be of use to those involved in ensuring that PFS operators meet their statutory requirements under relevant legislation.

Although it is possible to apply a CP system to the internal surface of an underground storage tank (UST) by the use of a sacrificial anode system, this publication is restricted to the provision of CP to the external tank surface.

Although this guidance has been prepared specifically for operators within the UK certain aspects may also be of use to those considering the installation of CP in other countries.

The guidance included in this publication refers to CP systems for both new underground steel tanks/steel pipework and existing underground steel tanks/steel pipework.

Cathodic protection methods can only be applied to USTs and associated pipework made from steel. This guidance is not therefore applicable to tanks and pipework made from non-metallic materials. Where 'storage tanks' and 'pipework' are referred to in this publication they should be taken as meaning those only made from steel. For an installation incorporating steel tank(s) and plastic pipework, it is appropriate to apply CP to the steel tank(s).

This publication is intended only to provide guidance on CP systems as a means of ensuring that petroleum products at a PFS are not released to the surrounding environment as a result of corrosion of underground steel storage tanks and steel pipework. Full details of other options available, and the risk assessment process that should be followed when considering them, are provided in IP *Guidelines for soil, groundwater and surface water protection and vapour emission control at petrol filling stations*. That publication also gives a review of relevant European and National legislation applicable to environmental protection.

One of the key factors that should be considered in the design, installation and maintenance of a CP system at a PFS is the impact that this will have on the existing electrical installation. Comprehensive information on the electrical installation at a PFS is provided in APEA/IP *Guidance for the design, construction, modification and maintenance of petrol filling stations* which should be read in conjunction with this publication.