CASINGS

EXECUTION, TESTING AND RESHAPING OF CROSSINGS OF BURIED PIPELINES WITH TRAFFIC ROUTES

August 2002

Recommendation

VERSION FRANCAISE

FOURREAUX

INSTALLATION, CONTRÔLE ET AMENAGEMENT DES TRAVERSEES DE CANALISATIONS ENTERREES SOUS DES VOIES DE COMMUNICATION

Août 2002

Recommandations

GERMAN VERSION

MANTELROHRE

AUSFÜHRUNG, PRÜFUNG UND SANIERUNG VON KREUZUNGEN ERDVERLEGTER ROHRLEITUNGEN MIT VERKEHRSWEGEN

August 2002

Leitfaden

CEOCOR is proud to present this booklet on the techniques relevant to Casings in three languages: English, French and German.

The initial steps to set up these booklets are guite back in time and were initiated during the presidency of Mr. Ferdinand Stalder.

The edition of these three versions was possible thanks to the joint efforts and strong commitment of a group of volunteers.

As President of Sector A, I would like to thank them on behalf of all the CEOCOR members.

The subject discussed in the booklet can be found in the Table of Content hereafter. I hope this would help and guide the Technicians and Professionals whose works are dedicated to Cathodic Protection and corrosion protection activities of buried pipelines.

The President of Sector A

Lucio Di Biase mig Chilo

Table of Content Page SCOPE OF APPLICATIONS 1 4 GENERAL 2 4 3 HISTORICAL BACKGROUND 4 **RISK OF CORROSION IN CASINGS** 6 4 Insufficient cathodic protection 4.1 4.2 Atmospheric corrosion in the annular space 4.3 Corrosion attack due to water in the air-filled annular space Corrosion attack if the annular space is filled with sand 4.4 Corrosion behaviour if the annular space is filled with a cement-bonded mass 4.5 4.6 AC corrosion with a annular space filled with sand or cement-bonded masses 4.7 Corrosion behaviour if the annular space is filled with paraffin or a similar product 5 INSPECTION METHODS FOR RISK ASSESSMENT 9 5.1 Contact between casing and pipeline 5.1.1 Potential measurement 5.1.2 Measurement of the earthing resistances 5.1.3 Resistance measurement 5.1.4 Short circuit measurement 5.1.5 Impressed current test 5.1.6 Positioning of the contact point Potential division method 5.1.7 5.1.8 Potential shape method 5.2 Measurements with Annular space filling 5.2.1 Current-conducting annular space medium and defects in the coating 5.2.2 Non-conducting annular space medium and/or no defects in the coating 5.3 Other methods 6 DETERMINING CRITERIA FOR THE PERIOD UNTIL THE EXECUTION OF RESHAPING MEASURES AT CASING CROSSINGS

7 **RESHAPE AND REPAIR OF CASING CROSSINGS**

- 7.1 General
- 7.2 7.2.1
- Repair methods Removal of the casing
- 7.2.2
- 7.2.3 7.2.4
- 7.2.4.1 7.2.4.2
- 7.3
- Removal of the casing Shortening of the casing Unearthing and substructure of the pipeline Filling of the annular space Filling with cement mortar Filling with paraffin wax Cathodic protection within the casing Replacement of the pipeline within the casing Establishing now crossing 7.4
- 7.5 Establishing new crossings

8 RECOMMANDATIONS FOR LAYING NEW PIPES WITH AND WITHOUT CASINGS

- 8.1 General considerations
- 8.2
- Steel pipe without casing Steel pipe concrete or asbestos cement casing Steel pipe steel casing 8.3
- 8.4 8.5 Steel pipe - plastic casing
- 9 ATTACHMENTS

20