

Committee for Cathodic Protection and Associated Coatings

## **Recommendation for measurements of interference on cathodic protection of buried pipelines**

### **Charter of collaboration for consensual measurements**

**DISCLAIMER:** The present recommendation has been consensually established by the members of the committee "Cathodic protection and associated coatings" of CEFRACOR. It reflects the general opinion in the trade and might be used as such as a basis representing at the best the state of art at the date of issue. Nevertheless, it shall not commit in any manner the CEFRACOR and the committee members by whom it was established.

**Preamble:** In this paper we should understand by "owner" the operator of a pipeline whether he is the actual owner of the structure or the operator contracted by the owner.

#### **1. NEEDS FOR CONSENSUAL MEASUREMENTS**

A suspicion of interference between two electrically separated structures, which has been established by a preliminary study of the drawings or by on-side electrical measurements should be examined and neutralized if necessary.

As a matter of fact, the interference may cause a risk of corrosion for the influenced structure.

In the case that the probable source of interference is a cathodic protection system by impressed current (third-party ground bed) the consensual measurements are carried out by recording by installing a cyclical circuit breaker on both influencing and influenced systems.

The interference is most often situated at the location of crossings, of approach or at the start of a separation between structures.

These measurements are carried out in the normal operating conditions of the structures, during commission of a new structure, during periodical inspecting or they may be the subject of a specific intervention.

They require access to the different equipments of the cathodic protection (such as potential test points, impressed current stations) of each of the networks involved in the influence.

In case of the need for implementing mitigating measures, complementary interventions will be generally required.

#### **2. PURPOSE OF INTERFERENCE MEASUREMENTS**

These measurements aim to:

- confirm the origin of the interference
- assess the risk of corrosion according to the criteria of the current standards (cf. associated documents)
- assess the mitigating measures to be implemented

- establish a report validated by the present parties

### **3. ASSOCIATED DOCUMENTS**

- NF A 05-650: Mesure et neutralisation des influences électriques dues aux courants vagabonds d'origine industrielle
- NF A 05-655: Techniques de mesures en protection cathodique externe des ouvrages en acier.
- NF A 05-615: Recommandations concernant les traitements des influences du courant continu sur les structures métalliques enterrées
- NF A 05-690: Protection cathodique – Définition des niveaux de compétence des agents en vue de leur qualification
- NF EN 12954: Cathodic protection of buried or immersed metallic structures
- NF EN 13509: Cathodic protection measurement techniques
- prEN 50162: Protection against corrosion by stray current from direct current systems.

### **4. MAJOR DIFFICULTIES ENCOUNTERED IN PERFORMING INTERFERENCE MEASUREMENTS**

Too often interference measurements have to be postponed for reasons of:

- Lack of availability of the operators especially when interventions on several different networks of several owners have to be coordinated
- High costs of the intervention for each owner of the structures.

Carrying out interference measurements may be more easier by:

- making it possible for one of the owners of the structures involved by the interference to carry out these measurements on his own
- the absence of any mutual invoicing of the operators of the structures involved by interference.

### **5. IMPLEMENTATION OF THE COLLABORATION CHARTER FOR CONSENSUAL MEASUREMENTS**

The implementation of a new organization requires compliance with a procedure that should guarantee its correct realization.

In the case that the request for consensual measurements is made by the owner of the structure called "A", the owner of the structure called " B " shall be informed with sufficient notice before the date of performing the consensual measurements, especially when problems of coordination between different owners may occur.

The owner of the structure "B" preserves the right to supervise these measurements without any invoicing.

The request of intervention comprises the following elements:

- the references of the owner and operator of the pipeline "A" who wishes to perform consensual measurements of interference, the designation of the pipeline "A" and the nature of the transported fluid
- the nature of the corrosion protection mechanisms of the pipeline "A" (impressed current, sacrificial anodes in the case of an influenced structure, drainage)
- the assumed location of the interference and if possible the designation of the pipeline "B" that is supposed to contribute to the interference
- the reason for the suspicion of an interference
- the listing of the means required in order to perform these measurements (preliminary meeting to discuss the possible causes of the interference, putting at disposal impressed current stations, drainage stations, potential test points,...)
- the date and the assumed duration of the intervention

- the number and names of the operating personnel and the name of their company
- authorisation for electrical works of the interventive personnel and the level of qualification in cathodic protection according to NF A 05-690.

The intervention can only be carried out with the approval of the owner of the structure "B".

Any objection should however lead to the possibility to postpone the intervention on short notice (less than 3 months).

During the intervention the following elements should be recorded in the intervention report (list not indented to the exhaustive):

- general conditions before the measurement including the electrical configuration and the adjustments of the impressed current stations of each of the involved structures
- the operating procedure of performing the measurements (use of cyclical circuit breakers, duration of interruption)
- a copy of the recordings (carried out before, during and after the measurements of interference)
- the trials of possible mitigating measures tested during the measurements
- the conclusions of the measurements
- the mitigating measures to be implemented in order to reduce the interference
- the needs for performing trials of mitigation
- the general conditions after the measurements including the electrical configuration and the adjustments of the impressed current stations of each of the involved structures.

At the end of the measurements, and except with an explicit and written agreement of the operator of the structure "B", the electrical configuration of the structures, as well as the adjustments of the cathodic protection shall be brought back in their original state.

Besides the final report destined to both parties, a synthetic document will be sent on short notice (less than one week) to the owners of the structures in case of interference that is deemed prejudicial.

In case of disagreement with respect to the conclusion of the measurements, carried out without supervision or with respect to the proposed mitigating measures, the interference measurements could be totally or partially redone by the owner of the structure "B"

## **6. LEGAL EXPOSURE AND MUTUAL NON-COMMITMENT**

This charter of collaboration does not apply in case of litigation.