

*WebCorr Corrosion Consulting Services Presents*

# AC Corrosion of Buried or Immersed Pipelines - Recognition, Evaluation, Mitigation and Prevention

Date: As published on website Venue: As published on website

## Course Overview

A.C. voltage on a buried or immersed pipeline is the driving force for the A.C. corrosion processes taking place on the steel surface at coating defects. Among other things, corrosion damage depends on A.C. current density, level of D.C. polarisation, defect geometry, local soil composition and resistivity. Long term A.C. interference on a buried or immersed pipeline can also affect the operation of cathodic protection systems.

This 3-day corrosion short course deals with A.C. corrosion of buried or immersed metallic pipelines due to A.C. interferences caused by inductive, conductive or capacitive coupling with A.C. power systems. This course covers every aspect of AC corrosion: its recognition, assessment, evaluation, measurement, mitigation, and prediction.

This corrosion course is available for in-house training, online and distance learning worldwide. It can also be customized to meet the specific needs of your organization.

## Who Should Attend

Pipeline integrity managers and engineers who are in charge of pipeline cathodic protection systems with AC interferences. Designers who are interested in cathodic protection & AC corrosion of buried or immersed pipelines. Technicians & maintenance personnel who deal with installed cathodic protection systems and AC interferences. Facility owners and users who are concerned with AC corrosion.

## Course Outline

1. Basic Electrical Concepts
2. Introduction to Corrosion
3. Terminology and Convention
4. Introduction to AC Corrosion
  - 4.1 Sources of AC
  - 4.2 AC Corrosion and Its Recognition



- 4.3 Influence of Soil Characteristics on AC Corrosion
- 4.4 Influence of Other Factors on AC Corrosion
- 5 Assessment of the A.C. influence
  - 5.1 General
  - 5.2 Assessment of the level of AC interference
- 6 Evaluation of the likelihood of A.C. corrosion
  - 6.1 Prerequisite
    - 6.1.1 General
    - 6.1.2 A.C. voltage on the structure
  - 6.2 A.C. and D.C. current density
    - 6.2.1 General
    - 6.2.2 A.C. current density
    - 6.2.3 High cathodic d.c. current density
    - 6.2.4 Low cathodic d.c. current density
    - 6.2.5 AC Current to DC current ratio " $I_{a.c.}/I_{d.c.}$ "
    - 6.2.6 Soil resistivity
  - 6.3 AC Corrosion rate
  - 6.4 Pipeline coatings and AC Corrosion
  - 6.5 Evaluation of the metal loss due to AC Corrosion
  - 6.6 PipelineCompass®: Pipeline Corrosion Modeling, Prediction, Assessment & Solutions
  - 6.7 Prediction of the likelihood of AC corrosion using PipelineCompass
- 7 Acceptable interference levels
- 8 AC Corrosion Measurement techniques
  - 8.1 Measurements
    - 8.1.1 General
    - 8.1.2 Selection of test sites
    - 8.1.3 Selection of measurement parameter
    - 8.1.4 Sampling rate for the recording of interference levels

### Course Outline

- 8.1.5 Accuracy of measuring equipment
- 8.1.6 Installation of coupons or probes to calculate current densities
- 8.2 D.C. potential measurements
- 8.3 A.C. voltage measurements
- 8.4 Measurements on coupons and probes
  - 8.4.1 Installation of coupons or probes
  - 8.4.2 Current measurements
  - 8.4.3 Corrosion rate measurements
- 8.5 Pipeline metal loss techniques
- 9 Mitigation measures
  - 9.1 General

- 9.2 Construction measures
  - 9.2.1 Modification of bedding material
  - 9.2.2 Installation of isolating joints
  - 9.2.3 Installation of mitigation wires
  - 9.2.4 Optimisation of pipeline/powerline route
  - 9.2.5 Power line or pipeline construction
- 9.3 Operation measures
  - 9.3.1 Earthing
  - 9.3.2 Adjustment of cathodic protection level
  - 9.3.3 Repair of coating defects
- 10 AC Corrosion monitoring and maintenance
- 11 End of course examination

### Course Registration

Please register online at [www.corrosionclinic.com](http://www.corrosionclinic.com)  
Or use the form below (photocopies of this form may be used for multiple bookings).

Dr/Mr/Ms \_\_\_\_\_  
Organization \_\_\_\_\_

Contact Person \_\_\_\_\_  
Contact Dept \_\_\_\_\_  
Telephone \_\_\_\_\_ Fax \_\_\_\_\_  
Email \_\_\_\_\_

Payment should be made by TT or online banking. Currencies in Australian Dollar, Canadian Dollar, US Dollar, Euro and Sterling Pound can be transferred directly without conversion. Our bank details can be found at the link below:

<https://www.corrosionclinic.com/payment.html>

### Course Fee and Discount

**Standard:** \$3,500      **Discount:** \$3,150

The fee includes a hardcopy of course note, certificate, light lunch, coffee breaks each day during the course.

Discount applies to a group of 3 or more persons from the same organization registering at the same time, or early-bird making payment at least 8 weeks before the course commencing date.

### Cancellation and Refunds

Cancellation or replacement should be conveyed to WebCorr in writing (email or fax). An administration charge of 50% of the course fee will be levied if the cancellation notice is received from 14 to 7 days before the course commencing date. No refund will be made for cancellation notice received 6 days and less. No refunds will be given for no-shows. Should WebCorr find it necessary to cancel a course, paid registrants will receive full refund. Refund of fees is the full extent of WebCorr's liability in these circumstances.



WebCorr has NACE certified Corrosion Specialist (#5047) providing customized in-house training, online and distance learning corrosion courses, corrosion seminars and workshops on corrosion, materials, metallurgy, paints and metallic coatings. Our corrosion courses are developed and taught by NACE certified Corrosion Specialist with over 30 years of practical experience in the field. Our training success is measured by your learning outcome.