



ELECTROMAGNETIC COUPLING BETWEEN POWER LINES AND PIPELINES

A one-day specialized course on understanding AC interference, safety and mitigation of electromagnetic coupling between overhead power lines and pipelines.

CPD Accreditation (*In progress*)

Date : Tuesday, 3 February 2015

Venue : Midrand, South Africa

Presenter : Dr Pieter H Pretorius

Course Fee : R 3 650 (Excluding VAT)
Group discount (10 %) applies.

Learning Objective

The objective with this one day course is for each student to develop an understanding of the basic fundamentals of the electromagnetic coupling from AC power lines to above ground and buried pipelines. Further to understand the safety aspects presented under steady state conditions and potential coating damage that may arise from fault conditions on the power line. The course does not focus on specific software but rather gives the participant insight into the estimation of pipeline potentials to form a better understanding of the coupling that will allow the participant to better interpret findings should software be used.

Course Description

This one day course addresses the basics of electromagnetic coupling from overhead powerlines to pipelines. It makes reference to AC interference

under both steady state and fault conditions, the coupling modes involved and the basics of how to predict such coupling effects. In addition it covers mitigation techniques in terms of both personnel safety and equipment protection. The course topics include the basic principles of an AC power system, induced AC pipeline voltages, risk of electric shock, AC corrosion, fault conditions, induced potential calculation, AC mitigation, and AC measurement techniques. For the course, the presenter makes use of a combination of theory and practical information that includes AC calculation and mitigation examples and a class room exercise.

Who Should Attend

Pipeline owner personnel, electric utility personnel, engineers and other technical individuals involved with AC interference and control on pipelines.

Course Outline

The following aspects will be covered:

- Introduction to EM Coupling to Pipelines; Basics Principles of the Power System;
- Coupling Modes: Electric Field Coupling, Magnetic Field Coupling, Conductive Coupling;
- Effects of AC Interference: Risk of Electrocutation; AC Corrosion: Fault Current; Steady State Current;
- Induced AC Voltage: Longitudinal Electrical Field (LEF); Pipeline Induced Voltages AC Interference Prediction and Mitigation: Data Requirements; Field Data and Surveys;
- Pipeline Electrical Characteristics; LEF Calculations; Induced Voltage Calculations; Coating Stress Voltage;
- Typical software that can be used in analysis; Mitigation Methods and Equipment;
- A class example on coupling;

Course Materials and CPD

Course material is included in the registration fee and will be provided. One CDP point will be awarded.

Course Date

The course date is:
Tuesday, 3 February 2015

Event Contact

For further information about the course contact:
office@terratechnology.co.za or 082 412 8257.

Course Venue

The course will be presented in Midrand, South Africa at the following venue: The Offices of the Corrosion Institute of Southern Africa, 38 Allan Road, Glen Austin, Midrand, South Africa.

Lecturer

Pieter H Pretorius received a B Eng (Electrical and Electronics) degree from the Potchefstroom University in 1985. In 2000 he received a PhD (Electrical Engineering) from the University of the Witwatersrand. His career in earthing, electromagnetic compatibility (EMC) and lightning protection in the industrial context is founded on his interest in electromagnetics.

He joined Eskom in 1988 where he enjoyed career growth over a seventeen year period to the level of Corporate Consultant: EMC. Boundary conditions drew him to independent consultancy in 2005.

He has authored / co-authored more than 100 papers, has registered three patents and has

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contributed chapters and parts of chapters to the Eskom Power Series of books. He participated in giving expert opinion in a court case on Power Frequency Electric and Magnetic Fields and is also lecturing in High Voltage Engineering at the University of the Witwatersrand.

He is a participating member in two CIGRE working groups and holds membership of the South African Institute of Electrical Engineers (SAIEE). He is also registered as a Professional Engineer with the Engineering Council of South Africa (ECSA).

Course Fee

The course fee is R 3 650-00 (Excluding VAT). Group discount (10%) applies to 5 or more participants from the same company.

Terms and Conditions

Payment Terms: Payment is required before the event; Delegates may be refused admission if payment is not received prior to the event. The Course Fee includes lunch, refreshments and training documentation / notes.

Cancellation and Withdrawal Policy: If a course is cancelled, the participants will be contacted and will receive a full refund. Liability is limited to the return of the course registration fee. If a registrant chooses to withdraw up to fifteen days prior to the course date, the fees will be refunded in full. However, if a refund is required within 15 days of the course date, an administrative fee of R 1 300 will be charged. Registration may be transferred to another person at no additional charge, however, both cancellation and registration transfer must be made in writing. Participants that have not paid for the event, but that cancel within 15 days of the event, will still be invoiced for the R 1 300 administration fee. Participants that cancel within 10 calendar days of the commencement of the event will be charged the full Course Fee.

Accommodation: Accommodation and arrangements for accommodation are the responsibility of participants and costs are not included in the Course Fee. Accommodation is available near the venue and information can be made available to interested registrants.

Note: The organiser reserves the right to make changes to the event schedule, contents and venue.

Registration

The course is limited to 20 participants. Kindly get your registration in as soon as possible to secure your place on the course. Please complete the registration form attached, sign and e-mail a scanned copy to: office@terratechnology.co.za; The registration deadline is 10 days prior to course date.



**- INDIVIDUAL REGISTRATION FORM: ONE DAY COURSE -
ELECTROMAGNETIC COUPLING BETWEEN POWER LINES & PIPELINES
3 February 2015, Midrand, South Africa**

DETAILS OF COURSE PARTICIPANT

Title:		First Name:	
Surname:			
ID:		Tel:	
Mobile No:		e-mail:	
SAIEE No:		ECSA No:	
Special Dietary Requirements (Please specify)			

DETAILS OF ORGANISATION & PERSON RESPONSIBLE FOR PAYMENT (FOR INVOICING PURPOSES)

Organisation:			
Street Address of Organisation:			
City:		Postal Code:	
Country:		Tel:	
VAT Reg No:		Company Reg No:	
Name and Surname of Person Responsible for Payment:		Purchase Order No:	
Signature of Course Participant:		Date:	
Signature of Person Responsible for Payment of the Course Fee (a):		Date:	

(a) By signing I hereby confirm that I am not only authorised to make payment but commit to make payment of the Course Fee on receipt of invoice. The Course Fee is R 3 650-00 (Excluding VAT) per applicant.

Important Notes to register for the course:

1. Please complete and sign your registration form. Then e-mail your registration form to: office@terratechnology.co.za;
2. One form per course applicant is required;
3. The registration deadline is 10 days prior to course date.
4. An invoice will be e-mailed to you for payment of your Course Fee;
5. Payment is required before the event. Please refer to the Terms and Conditions;
6. Please e-mail proof of your payment to office@terratechnology.co.za;
7. Confirmation of your registration for the course will be sent to you following receipt of proof of payment;
8. Kindly refer to the Course Flyer for Terms and Conditions and other information.