

**CERTIFICATE
OF
EDUCATIONAL ACHIEVEMENT**

This certificate is presented to

Roger Thijs

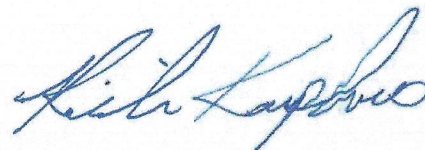
For completing training in the technical seminar

**Steam Turbine, Gas Turbine & Compressor Basics –
Instructor Rich Kamphaus**

and earned 6.5 Professional Development Hours (PDH's)

October 27, 2011, Claymont, Delaware

Instructor's Signature:

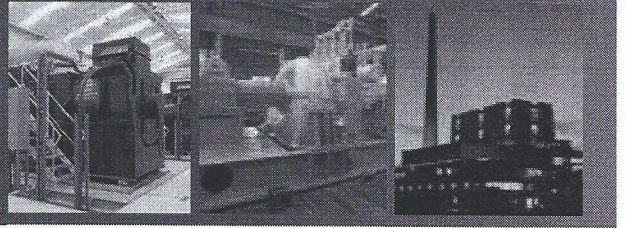


 **WOODWARD**

Invitation to Technical Seminars

- Power Generation and Management
- Turbine and Compressor Basics

Claymont, Delaware, October 26-27, 2011



Earn Professional Development Hours (6.5 hrs per day)

Day One: Wednesday, October 26 Introduction to Power Generation, Control, and Power Management

Featured Instructor: David Cutro

SEMINAR AGENDA:

9:00 – 10:30 AM


Generation Principles

- Asynchronous Generators
- Synchronous Generators
- Frequency, Speed, and Poles
- Generation of Three- Phase Power
- Voltage and Frequency Control
- Feedback Control and PIDs

10:30 AM – 10:45 AM — Break

10:45 AM – 12:00 PM

System Protection


WOODWARD
Roger Thijs
Euro-Support, Inc.

Oct 27 – Turbine & Compressor Basics

2:30 – 2:45 PM — Break

2:45 – 4:00 PM

Basics of Generation System Protection

- Selection for Engines and Generators
- Circuit Breaker Coordination
- Generator Grounding

4:00 – 5:00 PM — Question & Answers

5:00 – 6:00 PM — Social Hour (*Hosted by peaker services, inc.*)

Day Two: Thursday, October 27 Steam Turbine, Gas Turbine, and Compressor Basics

Featured Instructor: Rich Kamphaus

SEMINAR AGENDA:

9:00 – 10:30 AM

Steam Turbines – Part I

- Steam Turbine Applications
- Steam Turbine Basics

10:30 AM – 10:45 AM — Break

10:45 AM – 12:00 PM

Steam Turbines – Part II

- Steam Turbine Control and Protection Basics
- American Petroleum Institute Standard 612, 7th Edition Review
 - Control and Protection Sections 12.2 and 12.3
 - Focus on new 2010 Requirements

12:00 – 1:00 PM — Lunch

1:00 – 2:30 PM

Gas Turbines

- Gas Turbine Applications
- Gas Turbine Basics
- Gas Turbine Control and Protection Basics

2:30 – 2:45 PM — Break

2:45 – 4:00 PM

Compressors

- Industrial Compressor Applications
- Compressor Basics
- Compressor Control and Protection Basics

4:00 – 5:00 PM — Question & Answers

 **WOODWARD**

peaker services, inc.

