



Program

June 13 – 15, 2007
Paris



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PCIC

EUROPE
PETROLEUM & CHEMICAL INDUSTRY COMMITTEE

Conference Site

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Paris - The City of Light



Dear Guests

Welcome to Paris, known to all as the City of Light, a wonderful place successfully mixing art, culture, fashion and business. Over the centuries, talented artists and craftsmen have contributed to give Paris its very distinctive style and charm.

Paris has so many attractions to offer, the most famous being the Eiffel Tower, the Champs Elysées and the Arc de Triumph. Victor Hugo's Notre Dame de Paris Cathedral overlooks the banks of the River Seine and the oldest districts of the city. Close by is Montmartre with its hills, 19th century atmosphere and cobblestone streets, the home of many famous artists. One cannot talk of Paris without mentioning the fabulous collections of the Louvre Museum.

The new business district of La Défense is located in a truly exceptional environment. The Grande Arche, commemorating the "Declaration of Human Rights " was built in line with the Champs Elysées, the Arc de Triumph, the obelisk of la Concorde, the Tuileries gardens and the Louvre museum, forming a truly historic and stately vista.

While in Paris, you will also enjoy the variety of its fine cuisine, restaurants and cafés and a lot of opportunities for museums, shopping and nightlife.

On behalf of the local committee, we wish you a very interesting and profitable PCIC Europe conference, and we will do all that we can to make your visit to Paris enjoyable.

Ahmed Sfar, Jean-Pierre Sylvain

Local Committee PCIC Europe



The 2007 PCIC Europe Conference



I am very pleased to welcome you to Paris, France for the 4th PCIC Europe conference.

The Petroleum & Chemical Industry Committee Europe conference (PCIC Europe) is the premier forum for the exchange of experience in the practical application of electricity and instrumentation in the petroleum, chemical and pharmaceutical industries. Experts from users, engineering companies, manufacturers, regulators, certifying bodies, and international standardization organizations will present papers with the intention of informing the attendees about their experience and recent progress. The subjects selected for the conference are of current interest in the industry and therefore very important.

In addition to the technical content of the conference, the Welcome Reception will provide you with a flavor of Paris and the key-note speaker will give you an interesting perspective of our industry. During the conference Hospitality Suites are provided in the conference hotel to allow fruitful discussions with all attendees, exchange experience, and create efficient and friendly networking. These Hospitality Suites have a great success and I invite you to visit them after the conference technical sessions.

The first conferences were held in 2004 and 2005 in Basle Switzerland, the most recent being in Amsterdam Netherlands in 2006. Close to 200 participants attended each of these conferences. The roadmap for the coming years of the PCIC Europe conference has been set and will lead the Conference to Weimar Germany in 2008, Barcelona Spain in 2009, Manchester UK in 2010, Zagreb Croatia in 2011, and Helsinki Finland in 2012.

Do not forget to include the next PCIC Europe conference which will take place in Weimar, Germany from 10-12 June 2008 in your diary.

Have a nice stay in Paris.

Patrick Leroux

Chair PCIC Europe

The 2007 technical program



The continued success of the PCIC Europe conference demonstrates that it truly does provide the international forum needed by those involved in the Oil & Gas Exploration, Production, Refining, Chemical and Pharmaceutical Industries. It is not only the presentation of high quality technical papers that makes this conference so interesting, but also the discussions during and after the conference. It is a rare opportunity for end-users, engineering companies, manufacturers and regulatory bodies to be able to meet and discuss matters of vital importance to the industry.

The PCIC Europe Committee has renewed the technical co-sponsorship with the Industrial Applications Society of IEEE. In addition to the possibility offered to authors to have selected papers published in the Industrial Applications Transactions and Magazine, all papers presented in the 2007 PCIC Europe conference will be digitally archived on IEEE Xplore thus being available to readers throughout the world via the IEEE Xplore website.

The main topics of the PCIC Europe conference are:

1. Safety in the Workplace
2. Experiences from Users with Regulations and Standards
3. Electrical and Instrumentation (E&I) Engineering Practices
4. Equipment, Systems and Components
5. Operation, Maintenance, Repair, Asset Management and Qualification of Personnel

Attending the PCIC Europe conference is one of the best ways of getting the information needed to be able to adapt quickly in our ever-changing industry. Presenting a paper at a PCIC Europe conference is way to control the evolution of our industry. Please consider proposing a paper for the 2008 Weimar PCIC Conference.

I am looking forward to seeing you in Paris.

Terence Hazel

Secretary PCIC Europe

Program

Wednesday, 13. June 2007

19.00	Welcome Reception Welcome address Patrick Leroux, Chair PCIC Europe
19.15	Presentation of NAMUR – Hasso Drathen
19.25	Presentation of IEEE IAS PCIC 2007 Calgary – Ken Martin
19.35	Key note speaker: Jean-François Gruson of IFP “Oil & Gas projects in the next decade”
19.55	Entertainment
20.15	Cocktail
21.00	Hospitality Suites (open for all participants)

Thursday, 14. June 2007

09.00	Plenary PA-48 and PA-38	
10.30	Coffee Break	
11.00	Plenary PA-06 and PA-07	
12.30	Lunch	
14.00	Safety PA-02 / PA 13	Management PA-21 / PA-44
15.30	Coffee Break	
16.00	Engineering PA-50 / PA-26	Equipment PA 34 / PA-25
17.30	Closing day 1	
18.00	Hospitality Suites (open for all participants)	

Program

Friday, 15. June 2007

08.30	Engineering PA-05 / PA-36	Safety PA-24 / PA-49
10.00	Coffee Break	
10.30	Equipment PA-14 / PA-15	Management PA-03 / PA-31
12.00	Lunch	
13.15	Engineering PA-23 / PA-01	Safety PA-19 / PA-12
14.45	Coffee Break	
15.15	Equipment PA-28 / PA-20	Management PA-35 / PA-43
16.45	Closing of conference	

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PCIC Europe thanks these companies for their financial support of the 2007 conference

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Ref.	Title	Lead Author
PA-01	<p>How to verify the integrity of protectives functions falling under the scope of ATEX 94-9?</p> <p>Functions relevant for the safeguarding of industrial process plants are to be implemented using “state of the art” technology which is considered as being achieved if it is in accordance with published standards like IEC/EN 61508/61511. Problems arise if the so-validated function also falls under the scope of ATEX 94/9. This paper explains the different options and problems which are encountered by achieving the migration between ATEX requirements and functional safety standards.</p>	Patrick Lereverend
PA-02	<p>Calculating the Probability of Failure on Demand (PFD) of Complex Structures by means of Markov Models</p> <p>For the assessment of the "Safety Integrity Level" SIL it is necessary to determine the probability of failure on demand PFD. If no appropriate formula is available in IEC 61508, a Markov model can be used. The paper describes how to use Markov technique to calculate the PFD of heterogeneous multichannel structures.</p>	Andreas Hildebrandt
PA-03	<p>Measurement System Management</p> <p>Calibration of measurement systems is performed to correct drift which would reduce the accuracy of the measurement, and to give a level of assurance that a measurement is maintained within tolerances. Yet calibration is not intrinsically a good thing, it is a means to an end; the reduction of the potential costs associated with error or providing confidence in a measurement. The paper will show that an effective calibration regime will minimise business costs and maximise revenue whereas too much or too little calibration will reduce profit.</p>	Peter Barlow
PA-05	<p>Motor Starting Requirements and its Effect on Motor Design</p> <p>This paper presents a study comparing the mandatory starting API specifications together with a user company's additional requirements, versus the common method of designing motors to the power system short-circuit capacity. The results of the study will provide end users with guidance for choosing the best and most cost-effective solution.</p>	Rami Dabbousi
PA-06	<p>An Update on Surge Protection of Medium Voltage Motors: A Comparison of the Standards and Applications</p> <p>Much research has been done to aid in the determination of surge protection requirements for medium voltage motors rated between 500 - 10,000 HP range at 4.16 kV - 13.2 kV. In order to determine the surge magnitude and rise time seen by the motor windings, the sources of surges and the factors affecting the surge transmission to the motor terminals are exam-</p>	P.K. Sen

Ref.	Title	Lead Author
	<p>ined. The surge-withstand capability of the motor windings are reviewed, and based on the probability of surge occurrences and the withstand capability of the motor winding, decisions about additional surge protection requirements can be made.</p>	
PA-07	<p>Electrical Installations in Hazardous Areas</p> <p>This paper presents the changes that are expected to be incorporated in the next version of the installation standard IEC 60079-14 to be issued in 2007. The Equipment Protection Level will now be required on the zone drawings together with the defined zones and temperature classes. The consequences of these changes will be shown to be sometimes surprising.</p>	Peter Thurnherr
PA-12	<p>Digital Protection Relays are Designed for Long Life</p> <p>This paper will demonstrate that digital protective relays are designed, developed and produced for long life. Since "life time" has several different meanings this paper will help the user to distinguish among the useful life time, mission time, operational life time and commercial life time. It is frequently observed that useful life time and Mean Time To Failure are incorrectly used and this paper will show how to define them by calculation models or return of field experience as defined in safety and dependability requirements.</p>	Patrick Montignies
PA-13	<p>Mobile Phones in Category 3 Explosive Gas Atmospheres</p> <p>The risk associated with using a portable cellular phone in a Zone 2 hazardous location is evaluated. Experimental trials were performed on a representative sample of commercial grade cellular phones. The trial results indicated that all cell phones in the sample size would pose some risk of ignition in Zone 2 locations, but additional testing and analysis of the high risk components indicated the ignition risks were minimal.</p>	Marty Cole
PA-14	<p>To Test or Not to Test – A Case for Testing Complete Assemblies to IEC 60439-1</p> <p>Low voltage switchgear is covered by IEC 60439-1 and the components within the switchgear assemblies are covered by IEC 60947. The successful testing of a component in accordance with IEC 60947 does not guarantee that it will perform successfully as installed in a switchboard and this paper makes the case for type testing of components within assemblies as the only effective means of proving the integrity of the product. The paper concludes with proposals to help guarantee that switchgear will meet their specified requirements under all service conditions.</p>	Mike Hilton

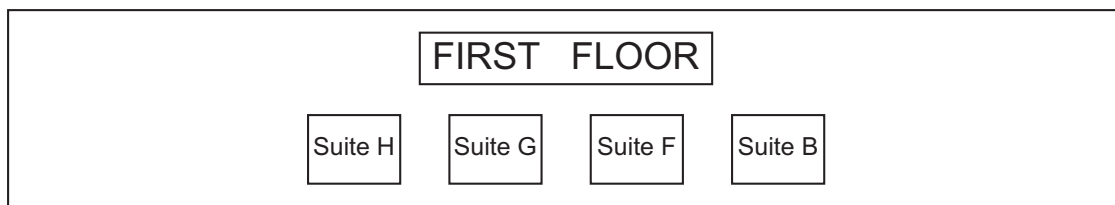
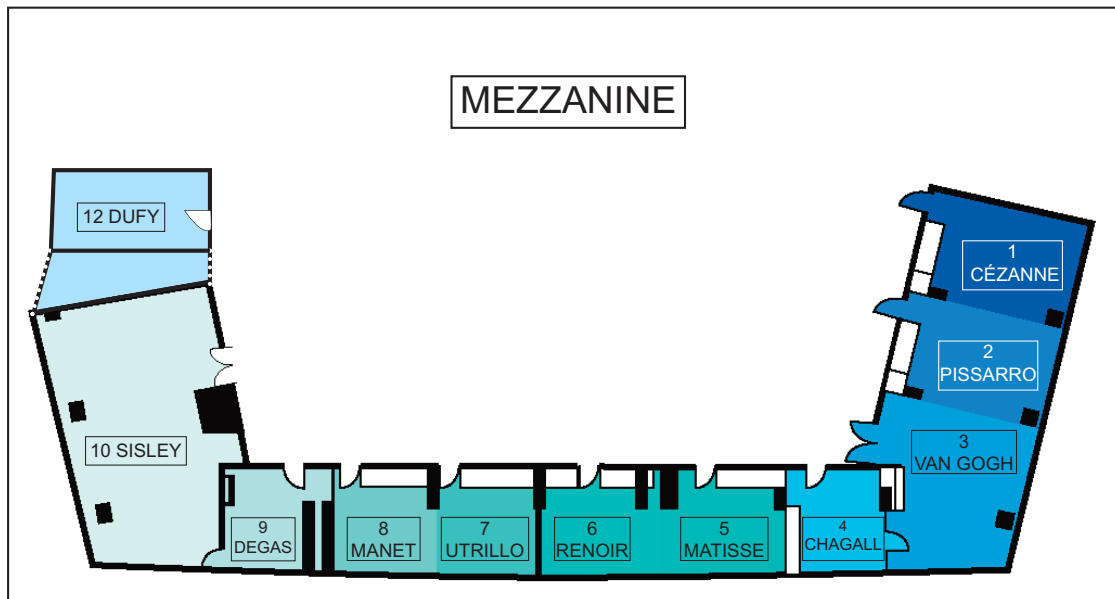
Ref.	Title	Lead Author
PA-15	<p>Protecting High-Voltage Motors Against Switching Overvoltages</p> <p>In an industrial plant several severe stator failures occurred on high-voltage motors switched with vacuum circuit breakers. Network simulations using EMTP/ATP software are presented, including a complete simulation of a vacuum circuit breaker. It will be shown that arresters are not enough to guarantee protection of the motor, and that capacitor-resistor surge suppressors are required to eliminate multiple reignitions.</p>	Caroline Vollet
PA-19	<p>Methods to interconnect functional safety and self-monitoring of field devices in process control loops</p> <p>Processes in the classical chemical industry are typically “unique” and there is little experience or models about their real behavior. These industries are faced with a historical dilemma: availability of the production and plant safety without false trips of the process control caused by safety instrumented systems. This paper discusses methods and approaches how these “contradicting” requirements can be met based on IEC 61508/61511 and the GMA/VDE 2650 or NE107 [NAMUR-recommendation].</p>	Wolfgang Lubcke
PA-20	<p>Labelling of Present and Future EX Equipment</p> <p>The marking of Explosion Protected 'Ex' equipment is a certification requirement of IEC standards, and some additional marking is required to meet ATEX directives. The competency requirements to understand the label information are increasing as the availability of skilled labour is decreasing. This paper summarizes some of the issues associated with the 'Simple label'.</p>	Trevor J. Tomkins
PA-21	<p>IECEX 2007 Update of New Initiatives and Compliance Tools for the Oil and Gas Industry</p> <p>This paper provides a brief update of changes and new initiatives within the International IECEX Certification Scheme, especially in relation to extension of the IECEX certification activities beyond Ex products and into the area of Ex related services. By responding to changes in industry needs IECEX is rapidly being regarded as an essential Compliance tool for the International Ex industries.</p>	Chris Agius
PA-23	<p>Automating Trace Heating Designs from Plant 3-D Models</p> <p>Since capital projects have grown in size and complexity, compressing engineering schedules is important for project execution. The design of trace heating, because it occurs near the end of the design phase and because of the need to coordinate across several disciplines, has not always been in step with construction schedules of projects. This paper will</p>	Chris Lindsay

Ref.	Title	Lead Author
	<p>look at the advancements of trace heating design software, which allows the designer to create the trace heating deliverables directly from the 3-D model database.</p>	
PA-24	<p>Sources of Mistakes in PFD Calculations for Safety-related Loop Typical</p> <p>The bottom-up approach used to calculate the probability of failure PFD suffers from many uncertainties, especially due to a lack of reliable failure rate data. In order to improve the results, data acquisition was initiated by the European NAMUR within its member countries. This paper will point out the large discrepancies found and will provide some guidance on how to proceed.</p>	Daniel Düpont
PA-25	<p>Wireless goes process automation – challenges in hazardous areas</p> <p>Wireless is predicted to be one of the fastest growing technologies in the area of automation technology in the upcoming years and is entering the hazardous areas of the chemical, petro-chemical or pharmaceutical industry too. What are the specifics when wireless enters the hazardous area, could a wireless signal become an ignition source, what are the limits for the radiated power? This paper discusses these questions and will explain solutions with the advantages and disadvantages.</p>	Stephan Schultz
PA-26	<p>Safe Implementation of HV Vacuum Switches in Oil & Gas Installations</p> <p>Over-voltage occurrences inducing heavy damages to HV motors and transformers have been experienced in the recent years. Such fault events have been thoroughly analyzed to identify the root causes, which most of the time originate from switching surges particularly when vacuum switching equipment is applied. This paper proposes recommended engineering practices for the safe implementation of the vacuum switching equipment assigned to HV transformers and motors.</p>	Jacques TASTET
PA-28	<p>Variable Speed Drive "Regenerative" Type - Lessons Learnt</p> <p>Variable speed a.c. drives are used in many new and existing petrochemical applications because of their well known benefits for energy efficiency and flexible control of process. This paper explains why a “Regenerative or Active Front End” technology had been chosen in a specific project and the main benefits of using this technology when both motor and VSD have to comply with ATEX category 2 or 3.</p>	Philippe Wesolowski

Ref.	Title	Lead Author
PA-31	<p>Validity of Ex- motor certification after repair under ATEX directives</p> <p>The risks associated with motors in hazardous areas have been known for many years, and the new requirements for the classification according to the ATEX Directives for the corresponding zone are well integrated by the manufacturers. But when these motors are subject to repair, the ATEX Directives introduced new rules affecting the field of responsibilities of the manufacturer, the end user and the repair shops. In this paper some of these risks are evaluated from regulatory point of view as well as from the practical point of view.</p>	Panu Kimpimaki
PA-34	<p>20 years of experience in VSDS for high power compressors of steam crackers</p> <p>The paper presents the history of variable speed drive systems for high power compressors of steam crackers (20 to 40 MW) in operation for the last twenty years in petrochemical plants of a major European company. The paper addresses issues such as lessons learned, performance and availability, maintenance and upgrades, debottlenecking and modernization. The authors will also make recommendations concerning technology choices for new projects.</p>	Bernard Martinot
PA-35	<p>A Comparison Between the IEEE 1566 Standard for Large Adjustable Speed Drives and the Comparable IEC Standards</p> <p>With the emergence of the new IEEE 1566 Standard for Large Adjustable Speed Drives, and the need for providing these large drives into the global market place, a comparison of several world standards would be of value to electrical engineers. The paper will cover the IEEE 1566 and comparable IEC standards as these standards would relate to the selection of large adjustable speed drives.</p>	Rick Paes
PA-36	<p>Lighting Practices and Applications, Use of High Intensity Discharge (HID) and Fluorescent Lights in Hazardous Areas</p> <p>Lighting practices and light-installations in hazardous areas differ from region to region around the world. For example, HID sources are preferred in North America whereas fluorescent luminaries are used more often in IEC countries. This paper will review the different standards and risks for lighting in hazardous areas, taking into account the Division world in North America and the IEC zoning system as well as new lighting sources.</p>	Roy Francis

Ref.	Title	Lead Author
PA-38	<p>Industrial Ethernet goes process automation...and what about explosion protection?</p> <p>The Industrial Ethernet technology is approaching the process automation applications and as such will be entering hazardous areas. Although Ethernet may be industrialized, the usability of it for applications in this area typically requires some way of explosion protection measures. This paper will discuss the different options for the different types of media, copper cables, fiber optic cables and wireless and will look at potential products and applications that may be suitable for Industrial Ethernet.</p>	André Fritsch
PA-43	<p>Decision model for End of Life management of switchgears</p> <p>Switchgear represents a significant capital investment in industrial power systems and a large amount of the electrical infrastructure in W-European Industrial plants is 30-45 years old. This paper presents a financial model developed based on case studies, that compares prospected future costs for: use up, retrofit, refurbishment, and full replacement. The financial indicators of this method can translate the technical know how into a rational decision for end of life management of circuit breakers and switchgear.</p>	Hans Picard
PA-44	<p>Comprehensive evaluation of insulating and switching media in medium voltage distribution and motor control</p> <p>An evaluation of insulation and switching media in medium voltage (1-52 kV) applications is presented in this paper. Special attention is given to motor switching and to distribution of electricity. The various insulating and/or switching media like oil, epoxy resin, air, SF6 and vacuum are discussed. The basic phenomena, such as current chopping and restrikes are reviewed and the harm that overvoltages can cause either by amplitude or rising time to the equipment.</p>	Wim Menheere
PA-48	<p>Inspection, maintenance and repair of ATEX equipment</p> <p>According to directive 1999/92/EC, the employer shall ensure that equipment used where an explosive atmosphere can occur, are maintained so as to reduce explosion risks. This activity must be carried out only by workers who have been trained to the specificity of the protection types and shall be specifically followed by management. This paper will present technical and organizational recommendations to ensure safe maintenance of equipment located in classified areas.</p>	Olivier Cottin

Ref.	Title	Lead Author
PA-49	<p>Analysis of ignition risk on mechanical equipment in ATEX</p> <p>Prior to the implementation of the ATEX directive 94/9/CE, the certification of equipment intended to explosive atmospheres was only dedicated to electrical equipment. Since the 1st July 2003, non-electrical sources of ignition are also to be looked at, one of the risks being due to mechanical friction and impacts. This paper describes the results of an extensive experimental program to determine the relevant parameters that need to be considered when checking the possibility of ignition due to impacts of friction.</p>	Claire Petitfrere
PA-50	<p>Energy saving potential by optimizing the process of air generation and consumption</p> <p>Compressed air is an essential service in many industries vital to the well being of plants and processes. It has universal applications in instrumentation for process control and is used at many pressures levels. The energy costs associated with generating and treating air can be a high proportion of a plants energy costs. Excellent energy savings of up to 30% some at low investment with commensurate reductions in power station greenhouse gas emissions and carbon can be achieved and process improvements made by optimising air systems.</p>	Eric Harding



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CÉZANNE	1	Cortem
PISSARRO	2	Schneider Electric
VAN GOGH	3	ATX - Leroy Somer - Emerson Process Management
CHAGALL	4	Nexans
MATISSE	5	Converteam
RENOIR	6	Endress Hauser
UTRILLO / MANET	7 / 8	ABB
DEGAS	9	Stahl
SISLEY	10	Thuba - COOPER Crouse Hinds
DUFY	12	Pepperl Fuchs
Suite B		Hubbel Chalmit Hawke Killark
Suite F		Bartec
Suite G		DTS
Suite H		Eaton Electric

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Hospitality Suites

Suite

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Call for Papers PCIC Europe 2008

5th Petroleum and Chemical Industry Conference Europe –
Electrical and instrument Applications

June 10 – 12, 2008 Weimar, Germany

The 5th PCIC-Europe Conference will be organised in Weimar, June 10 – 12, 2008. The conference program will include plenary presentations as well as presentations on specific topics in the field of electrical and instrumentation technology. Experts from:

- End users
- Engineering companies and manufacturers
- Regulators and insurance institutions
- The European Commission

are invited to present contributions with the intention to inform about their experience and recent progress. Especially senior engineers can provide helpful information for younger engineers to stimulate the knowledge transfer from generation to generation. New solutions to achieve benefit concerning costs and safety are welcome to be presented.

Call for Papers

Experts in the field of Electrical and Instrumentation Applications in the Petroleum and Chemical Industry are invited to submit their contributions to the 5th Conference PCIC Europe.

Please submit your abstract to the Secretary of the PCIC Europe Committee: terence.hazel@fr.schneider-electric.com before September 22, 2007.

Your abstract should indicate the main ideas of your presentation and should not exceed 1 page (A4 size)

Deadlines

Abstract submission	September 22, 2007
Draft papers	December 15, 2007
Final papers	March 15, 2008
Conference	June 10 – 12, 2008

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