



**1-day International Seminar**

# **WELD REPAIRS**

**IN PETROCHEMICAL & POWER  
INDUSTRY**

**- PLANT AND RESEARCH  
EXPERIENCE**



*(Preceded by an optional 2-day Training Course on 'Life and Fitness for Service Assessment of High Temperature Refining & Petrochemical Plant' held at the same venue on 12-13 December)*



**Venue: Institute of Materials, Minerals and Mining  
IOM3 ( [www.iom3.org](http://www.iom3.org) ), London, UK**

**Date: 14 December 2005**

**Organiser**



**EUROPEAN TECHNOLOGY DEVELOPMENT**

[www.etc1.co.uk](http://www.etc1.co.uk)

[www.ommi.co.uk](http://www.ommi.co.uk)

## ***International Seminar***

# **WELD REPAIRS IN PETROCHEMICAL AND POWER INDUSTRY - PLANT AND RESEARCH EXPERIENCE**

**14 December 2005.**

**Venue: Institute of Materials, Minerals and Mining (IOM3), London, UK**

## ***SEMINAR THEME***

Plant engineers and operators in refinery, petrochemical and power industry are faced with ageing plant equipment and tighter maintenance budgets to keep operating efficiently. The demand for improved and less cost and time consuming weld repair solutions is therefore at an all time high in order to meet the challenge of repairing mechanically damaged furnaces, heaters, headers and piping systems. Hence an improved understanding of welds/repair welds and their short to long term reliability and integrity will assist plant personnel to maximise plant availability and reduce damage to existing equipment without compromising safety.

This International Seminar is being organised to offer a state-of-the-art, world class experience in issues of current importance to plant operators, weld consumable producers, welding companies, inspection and maintenance personnel, service providers and researchers alike. The main theme of the Seminar is to review, document, and transfer technology surrounding plant experience and R&D in understanding the mechanisms and root causes of repair weld failures, assessment methodologies, remedial actions, and application of long term solutions.

Recently a large number of new industry, national and European Commission sponsored projects have been undertaken on this topic and the industry needs to be aware of the findings of these initiatives. At the same time industry engineers and researchers need to be aware of the more successful practices adopted by various high temperature industrial sectors and the pitfalls to avoid. New practices have been developed by some industrial sectors and researchers for the cold weld repair of both thick and thin section components and this technology needs to be transferred to other industrial sectors in order to maximise profit. The use of such techniques saves time and money not only in terms of welding time and the costs saved in hiring and use of heating equipment but more importantly in terms of the shorter outage times.

This Seminar will provide a forum for the stake holders to review the latest innovations and insights into weld repair problems and innovative solutions or practices adopted by industry. It will be an excellent opportunity for maintenance and inspection staff to identify key issues with respect to weld repair procedures and weld reliability.

***The Seminar has been designed to provide much opportunity for participant involvement, discussion and exchange of experience with other delegates.***

*Note: Preceding this Seminar, a back-to-back **training course** is also being held at the same venue, which should be of considerable benefit and interest to the **attendees from the refining and petrochemical industry** as it will provide them an opportunity to broaden and develop the skills necessary for effective plant life management and improving equipment reliability in refineries and petrochemical sector. This course will be mainly focused on the understanding of the damage mechanisms resulting from the petrochemical processes together with the practical application of condition assessment and life prediction techniques. For information on this course please visit [www.etd1.co.uk](http://www.etd1.co.uk) or ask at: [etd@etd1.co.uk](mailto:etd@etd1.co.uk)*

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## **SUBMISSION OF PRESENTATIONS AND PROCEEDINGS**

As the Seminar is aimed more at an industrial audience the speakers are not expected to provide formal papers. Instead, the intention is to provide proceedings on a CD consisting of presentations in pdf format. The **deadline** for the submission of **presentations** is: **1<sup>st</sup> December 05.**

(*Note:* If the presenters wish to offer formal papers these may be published in a refereed journal.)

**PRESENTATIONS:** **Oral presentations** will be of **20 minute duration** including discussion.

## **WHO SHOULD ATTEND**

The Seminar should be of interest to all stake holders such as plant designers, manufacturers, operators, weld consumable producers, welding and repair companies, researchers and service providers. It should be of interest to plant managers and those responsible for maintenance and operation, plant integrity and its evaluation, inspection and the development of welding procedures and their implementation.

## **TECHNICAL ENQUIRIES:** Toby Lant, Seminar Coordinator

European Technology Development Ltd., 2 Warwick Gardens, Ashted, Surrey KT21 2HR, UK

**Tel:** +44(0)1628 670 778 (direct) or +44(0)1372 229 162 (general)

**Fax:** +44(0)1372 229 164 **Email:** [tlant@etd1.co.uk](mailto:tlant@etd1.co.uk) (direct) or [etd@etd1.co.uk](mailto:etd@etd1.co.uk) (general)

## **ABOUT THE ORGANISER**

European Technology Development Ltd. (ETD) is a UK based engineering advisory, consulting and R&D company providing services in life assessment/extension, stress analysis, defect assessment, maintenance, welding and weld repairs, materials and engineering issues in the power plant, refining and petrochemical industry. ETD provides specialist advisory service on the use of appropriate materials and the sources of data for plant integrity / life assessment. ETD has just completed a large collaborative R&D effort in weld repairs (traditional and cold welds) of both low and high alloy steel components operating in high temperature plant. The company, together with its partners, was recently (2005) awarded an Institute of Materials, Mining and Minerals (IOM3) award for the best effort and publications in weld repairs.

ETD has in the recent past organised various international conferences and training workshops/ courses in the UK and other countries (Germany, France, Portugal, Hong Kong, Malaysia, Pakistan etc.) on the issues such as: high temperature materials, welds, component safety and durability, weld repairs, power plant cycling, risk based maintenance, CCGT cycling, plant management and maintenance.

More information at: [www.etd1.co.uk](http://www.etd1.co.uk) and [www.ommi.co.uk](http://www.ommi.co.uk)

## **The Venue**

Information on the venue and direction on how to get there can be obtained from:  
[www.iom3.org](http://www.iom3.org)

# **WELCOME & REGISTRATION**

0900 - 0930 hrs

## **SESSION 1: WELD REPAIRS - ISSUES INVOLVED**

0930 – 1050

- 1. Maintenance welding - think about it !**  
*Barrie F Spafford, ex-Conocophillips, UK*
- 2. Issues to be considered in the weld repair of 1Cr and 1.25Cr 0.5Mo in the refining industry**  
*Toby Lant, European Technology Development, UK*  
*Shimpei Fujibayashi, Idemitsu, Japan*
- 3. Development of procedures for the integrity and life assessment of repair welds**  
*Andreas Klenk, MPA Stuttgart, Germany*  
*Nacera Le Mat Hamata, European Technology Development, UK*
- 4. Novel application of residual stress measurement to repair welds**  
*E Kingston, VEQTER Ltd., UK*  
*D J Smith, University of Bristol, UK*

**Break**

**1050 – 1120 Hrs**

## **SESSION 2: REPEAT, COLD AND DISSIMILAR METAL WELD REPAIRS**

1120 – 1240

- 1. Development and application of ferritic cold weld repairs**  
*K C Mitchell and S J Brett, RWE npower, UK*  
*J Tolaini, Mitsui Babcock, UK*
- 2. Weld repair of dissimilar joints in air coolers of hydrocracking plant**  
*Peter Bernasovský, Welding Research Institute, Bratislava; Tomáš Žáček, Stroje a mechanizmy, a.s., Metalchem, Vlčie hrdlo, areál Slovnaft, Bratislava; Slovnaft MaO, Vlčie hrdlo, Bratislava, Slovakia*

3. **Areas of concern for weld repair in modern refinery, petrochemical and gas plant**  
*A Saunders Tack, N Dowling, Shell Global Solutions, The Netherlands*
4. **The welding and repair of alloy 800H**  
*Benoit Bouquin, Welding Technical Advisor for UTP Schweissmaterial GMBH, Bohler Thyssen Welding Group, Germany*

**Lunch**

**1240– 1340 hrs**

Plus **Film show: "The World of Welding Solutions"**  
*Mark Roberts, Bohler Thyssen Welding UK Limited, UK (15 minutes)*

**SESSION 3: WELD REPAIRS IN LOW / HIGH ALLOY STEELS AND STAINLESS STEELS**

*1340 – 1530 hrs*

1. **Keynote: Review of weld repair techniques in low and high alloy steels**  
*Adrian Williams, Consultant, UK*
2. **Repair by welding of HP rotor blading on 13up110 steam turbine**  
*Ewald Grzesiczek, Jerzy Trzeszczyński, Pro Novum, Ltd., Poland*  
*Kazimierz Patyk, Power Systems Repair Enterprise, Inc., Poland*
3. **Spiral Welding – Cutting the cost of maintenance but not the quality**  
*Greg Lindsell, SpiralWeld, UK*
4. **Salvage weld repair of creep resisting nickel superalloy castings**  
*David W Harvey, VBC Aerospace Group, Loughborough, UK*
5. **Plant-life extension – the in-situ upgrading of gas coolers on an offshore platform**  
*J Tolaini, Mitsui Babcock, UK*

**DISCUSSION SESSION:**

*1530 - 1600 hrs*

# REGISTRATION FORM

(Please copy and e-mail / fax / post)

International Seminar on: "Weld Repairs in Petrochemical and Power Industry  
- Plant and Research Experience" 14 December 2005

**REGISTRATION FEE: Amount payable** is that shown in the 'Fee + VAT' column.

\*\* Overseas delegates also pay VAT (Value Added Tax) for events held in the UK.

<i>Reduced Fee</i> (until 9 <sup>th</sup> October)		<i>Full Fee</i> (from 10 <sup>th</sup> October)	
Fee **	<i>Fee +VAT @ 17.5% *</i> (To Pay) – Pounds	Fee **	<i>Fee +VAT @ 17.5% *</i> (To Pay) – Pounds
£180	211.50	230	270.25

## PAYMENT

**By UK bank cheque, bankers draft, or bank to bank transfer** (bank charges to be paid by the registrant) to:

European Technology Development Ltd.

Nat West Bank, A/C No: 26096625, Sort Code: 60-12-36, UK

Please quote reference '**Weld Repairs Seminar**' with the payment and state here how you paid / intend to pay

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**By Credit Card:** Major cards such as Visa/ Master Card/ JCB/ American Express/ Switch are accepted with the exception of Dinners Club. For security please **fax or post** this information.

Name of Account Holder			
Card Type and No.		Expiry date	
Authorisation signature			

**Venue:** Institute of Materials, Minerals and Mining (IOM3) [www.iom3.org](http://www.iom3.org)

**Accommodation:** Information on local hotels will be supplied by ETD on request.

**Delegate Details: (Required for your badge)**

Your **title** and **name:**

Company:

Position:

Address:

Phone:

Fax:

E-mail:

**REGISTRATION ADDRESS:** Please copy and post/ fax/ e-mail to address below:

**Registration Section**, 'Weld Repairs Seminar',  
European Technology Development, 2 Warwick Gardens, Ashted, Surrey KT21 2HR, UK  
Enquires: [registration@etd1.co.uk](mailto:registration@etd1.co.uk)  
Tel: +44 (0) 1372 229 162 or +44(0)1372 802 555 Fax: +44 (0) 1372 229 164