

FESI/CSIC Workshop 2015

## Structural Integrity:

# The Role of Inspection and Assessment Methodologies

Shanghai, 21 - 22 September 2015

### Purpose

To address the role of inspection of components and structures and how the outputs are used to assess the integrity of plant.

Workshop will be lead in China by Dr Geoff Booth accompanied by Will Daniels and Dr Henryk Pisarski  
They will be supported by video contributions from Dr Brian Tomkins, Prof Steve Garwood, Prof Peter Cawley, Dr Keith Newton, Dr Tony Dunhill and Dr Phil Horrocks

### Programme

DAY ONE			
09:00	Introduction	Prof Shuntung Tu and Geoff Booth	
Session 1		Session 2	
STRUCTURAL INTEGRITY APPROACHES		MONITORING AND INSPECTION	
09:15	<b>1. Evolution of structural integrity philosophy</b> - Safety Culture and professional responsibility (V) Brian Tomkins  <b>2. Through-life integrity assurance</b> - Material failure process Geoff Booth/Steve Garwood - Traditional design methods Geoff Booth/Henryk Pisarski - Examples from industry Geoff Booth  <b>3. Risk-based/risk-informed approaches</b> - Phil Horrocks	13:00	<b>1. The role of NDT in life management</b> Tony Dunhill  <b>2. NDT for assessment in the nuclear sector</b> Will Daniels  <b>3. Permanently Installed monitoring technology to improve structural integrity assessment</b> Peter Cawley  <b>4. NDE research for structural integrity assessment</b> Keith Newton
12:00		Lunch	
All presentations will be supported by examples taken from various industries			

DAY TWO			
Session 3		Session 4	
INTEGRITY ASSESSMENT		STRUCTURAL INTEGRITY IN CHINA	
09:00	<b>1. Structural Integrity Assessment Methodologies</b> Geoff Booth  <b>2. Codes and Standards for defects and life assessment</b> - ASMEXI - Will Daniels - R6 - Steve Garwood - BS7910 - Steve Garwood  <b>3. Links between inspection and assessment</b> - BS7910 - Henryk Pisarski	13:15	<b>Chinese defect assessment code: principles, development and applications</b> Fuzhen Xuan
All presentations will be supported by examples taken from various industries		17:00	

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**Dr Geoff Booth**

Consultant

Previously with TWI

Dr Booth is a chartered engineer with more than 35 years' experience in the field of the structural integrity of welded joints. He has directed research programmes and managed practical consultancy projects, including failure analyses, for industrial clients mostly in the oil and gas sector.

**Dr Henryk Pisarski**

Consultant

Previously with TWI

Dr Pisarski, a Technology Fellow in the Integrity Management Group at TWI Ltd, dealing with structural integrity issues concerned with avoidance of fracture in engineering structures. He is the UK delegate to IIW Commission X (Structural performance of welded joints – fracture avoidance), chairman of BSI committee ise/101/4 fracture toughness testing, member of ise/101/4/2 concerned with standardising the SENT test (BS 8571), member of BSI WEE 37 (Acceptance levels for flaws in welds (BS 7910), member of ISO committee ISO TC164, SC4F fracture toughness testing.

**Will Daniels**

Inspection Modelling Team Leader

AMEC Foster Wheeler

Will Daniels has worked in inspection development and qualification for thirty years. He is currently the team leader of inspection modelling group at Amec Foster Wheeler and a director of KANDE international. He was involved in the early development of ENIQ and has experience of qualifying inspections under both ENIQ and ASME processes.

**Dr Brian Tomkins FREng**

Consultant

Chairman, FESI

Dr Tomkins was the Chief Technologist at AEA Technology and advised the AEA Technology Chairman on Engineering Structural Integrity. He is currently Chairman of FESI

**Professor Steve Garwood FREng**

Professor of Structural Integrity

Imperial College London

Following a career spanning 19 years at TWI rising to Head of Structural Integrity, Prof Garwood joined Rolls-Royce plc in 1996 undertaking a number of senior roles over including Director of Materials and Director of Technology. He retired from Rolls-Royce in Dec 2013 and is now Professor of Structural Integrity in Mechanical Engineering at Imperial College London.

**Professor Peter Cawley FRS FREng**

Head of Mechanical Engineering Dept.

Imperial College London

Professor Cawley is a fellow of the Royal Academy of Engineering (elected in 2006) and of the Royal Society (elected 2010). He is a director of two spin-out companies set up to exploit technology developed in his research group (Guided Ultrasonics Ltd [www.guided-ultrasonics.com](http://www.guided-ultrasonics.com) and Permasense Ltd [www.permasense.com](http://www.permasense.com) .

**Dr Keith Newton**

Director of UK Research Centre for NDE

Imperial College London

Dr Newton established a commercial research group in Oil & Gas NDT and managed the UK National NDT Centre at AEA Technology. He was Director of a number of international science and engineering businesses within AEA Technology including a wide range of NDT operations, and also non-executive director of technology businesses including a joint venture in China.

**Dr Tony Dunhill**

Visiting Professor, Nottingham University

Previously Rolls-Royce Marine

Dr Dunhill spent 39 years working in the area of NDE becoming an Associate Fellow in NDE at Rolls-Royce. He chaired the BINDT, British Institute of Non Destructive Testing, Working Group developing the UK Government report 'A future Landscape for NDT in the UK Economy' published in 2014. He retired in March 2015 but is still active within the RCNDE and BINDT.

**Dr Phil Horrocks**

Structural Integrity Specialist, Regulatory Support (RSD)

AMEC Foster Wheeler

Dr Horrocks is a Chartered Engineer with 24 years experience of engineering structural integrity of pressure systems in the nuclear and oil and gas industries, applied through consultancy and direct operator roles.

**Professor Fuzhen Xuan**

Professor of Mechanical Engineering

East China University Sci&Tech

Prof Xuan is the dean of School of Mechanical & Power Engineering. His research interests are in (1)material-structure-integrated safety theory and technology; (2)Nano and meso techniques and application in chemical and mechanical field; (3)High temperature material and strength; (4)Chemi-mechanics theory and application

