

# GOOD PRACTICE IN NON-INVASIVE INSPECTION

Institution of  
**MECHANICAL  
ENGINEERS**

18 September 2014  
One Birdcage Walk, London  
[www.imeche.org/events/S6152](http://www.imeche.org/events/S6152)

Pressure Systems Group  
**Seminar**



# GOOD PRACTICE IN NON-INVASIVE INSPECTION

18 September 2014, One Birdcage Walk, London



## HEAR REGULATORS, STANDARD SETTERS AND USERS DISCUSS THE KEY BENEFITS OF NON-INVASIVE INSPECTION (NII) AND THE KEY ADVANCES IN TECHNOLOGY IN THE FIELD OF INSPECTION.

Join us on 18 September at Good Practice in Non-Invasive Inspection to hear the HSE define their expectations in terms of deployment of NII techniques and advise when certain approaches are appropriate for your company.

This event is an opportunity for you to look at best practice and address problems within your projects to reduce operating cost and increase safety.

Discover how existing users have benefited by using NII and hear cautionary advice on where the approach should be limited.

Attend this seminar to learn how a small change in your process can lead to a large change in degradation and how a non-invasive approach can work sufficiently if it is able to detect the unexpected.

### BENEFITS OF ATTENDANCE:

- **Hear** technical discussions of existing users' experience of NII
- **Understand** the standard regulators setters positions, intents and common interpretations
- **Learn** from the experience of current users, success stories and lessons learnt
- **Find** out about new NDT technologies which support NII
- **Discover** how appropriate use of NII allows operators to maximise the availability of key assets and minimise risks associated with vessel entry

### OUR EXPERT SPEAKING PANEL INCLUDES:



#### GRAEME HUGHES

HM SPECIALIST INSPECTOR OF HEALTH & SAFETY, HAZARDOUS INSTALLATIONS DIRECTORATE, HSE



#### PAUL STANWORTH

HM SPECIALIST INSPECTOR OF HEALTH AND SAFETY



#### MARK STONE

TEAM LEADER, SONOMATIC

See page 4 for full speaker list

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## PROGRAMME

### THURSDAY 18 SEPTEMBER 2014

**09:30 REGISTRATION**

**10:00 CHAIR'S INTRODUCTION**

**10:10 KEYNOTE: NON-INVASIVE INSPECTION**  
**A REGULATOR'S VIEW**  
 Paul Stanworth, HM Specialist Inspector of Health & Safety, Hazardous Installations Directorate HSE

**10:40 AN OVERVIEW OF THE HOIS RECOMMENDED PRACTICE FOR NII AND APPLICATION EXPERIENCE**  
 Mark Stone, Team Leader, Sonomatic

- Background to development of the RP, published as DNV-RP-G103, within the HOIS Joint Industry Project
- Principles of assessment for NII
- Definition of inspection requirements
- Specification of inspection techniques and coverage meeting the requirements

**11:10 Q&A WITH PANEL SPEAKERS**

**11:30 NETWORKING BREAK**

**11:50 AN UPSTREAM APPROACH TO NON-INVASIVE INSPECTION**  
**SHELL'S STRATEGY**  
 Malcolm Miller, Technical Authority, Shell

- What is Shell Non-Invasive Inspection (S-NII)?
- Why does Shell want to do S-NII?
- The S-NII process, application and challenges

**12:20 RISKS INHERENT IN THE NON-INVASIVE APPROACH**  
**A CASE STUDY**  
 Graeme Hughes, HM Specialist Inspector of Health & Safety, Hazardous Installations Directorate HSE

- Non-Invasive approach works if sufficiently comprehensive to detect the unexpected
- Is 'similar service' a safe assumption?
- Case study

**12:50 Q&A WITH PANEL SPEAKERS**

**13:10 NETWORKING LUNCH**

**14:00 PRACTICAL APPLICATION OF DNV RP-G-103 AT A MAJOR OFFSHORE PRODUCTION FACILITY**  
**A CASE STUDY**  
 Ian Bradley, Inspection Consultant, BP

- Intrusive vessel inspections are costly
- Case Study in using RP-G-103 to establish suitability for NII
- Development of a NII programme using latest generation inspection technologies to achieve the same confidence as conventional intrusive inspection

**14:30 NON-INVASIVE INSPECTION OF FIRE TUBE BOILERS**  
 Peter Batty, Principal Engineer, SAFed

- Inspection of fire tube boilers by traditional means is challenging
- SAFed investigations into the feasibility of non-invasive approaches
- Current position and way forward

**14:45 Q&A WITH PANEL SPEAKERS**

**15:05 NETWORKING BREAK**

**15:40 NON-INVASIVE EXAMINATION OF HAZARDOUS MATERIAL STORAGE TANKS**  
 Paul Jackson, Function Leader Inspection, ABB Engineering Services

- Guidance in EMMUA 159 requires entry into storage tanks to inspect the base to shell junction
- Inspection is not without risk however and emptying and cleaning tanks containing hazardous materials can damage plants and has environmental consequences
- The reasons for invasive inspection and where a non-invasive strategy was justified and how this was done

**16:10 Q&A WITH PANEL SPEAKERS**

**16:20 CHAIR'S CLOSING REMARKS**

**16:30 CLOSE**

Find out more about our speakers at [www.imeche.org/events/S6152](http://www.imeche.org/events/S6152)

- This programme is subject to change.
- The Institution is not responsible for the views or opinions expressed by individual speakers.

### Organising committee:

Pressure Systems Group Committee

## **SPEAKERS AND CONTRIBUTORS**



**THE INSTITUTION IS DELIGHTED TO HAVE SECURED A GROUP OF HIGH-CALIBRE INDUSTRY EXPERTS TO PROMOTE GOOD PRACTICE IN THE USE OF NON-INVASIVE INSPECTION (NII).**

**- Adam Thistlethwaite,  
Organising Committee,  
Pressure Systems Group**

### **GRAEME HUGHES**

**HM SPECIALIST INSPECTOR OF HEALTH & SAFETY, HAZARDOUS INSTALLATIONS DIRECTORATE, HSE**

Graeme Hughes' current position involves the assessment and inspection of mechanical plants on a number of sites subject to the COMAH Regulations including Oil Refineries, LNG storage facilities and chemical process plants. He has extensive experience of working with NDT at all levels and of completing FFS calculations. Graeme has direct experience of Non-Invasive Inspection and was a member of the HOIS working group developing good practice guidance on how to achieve a suitable inspection without entry.

### **IAN BRADLEY**

**INSPECTION CONSULTANT, BP**

Ian Bradley is a Chartered Engineer and professional member of the Institution of Materials, Minerals and Mining, The Welding Institute and Fellow of the Chartered Quality Institute. After graduating from UMIST, Ian has 37 years' experience, 30 years of which has been in the oil and gas industry. Ian has a wide range of experience covering Metallurgical Failure Investigations, Material Selection and Consultancy, Welding Engineering, Corrosion Management and Inspection Engineering. Ian has spent the last 10 years with BP Exploration Operating Company fulfilling the roles of Inspection Consultant within their Inherently Reliable Facilities Technology Flagship and Upstream Engineering Centre, and as the Pressure Systems Integrity Engineer for an onshore oil and gas production facility.

### **PAUL STANWORTH**

**HM SPECIALIST INSPECTOR OF HEALTH AND SAFETY, HSE**

Paul Stanworth is a Chartered Mechanical Engineer working in the Health and Safety Executive's Chemicals, Explosives and Microbiological Hazards Division. His role involves providing engineering support to regulatory inspections and investigations, particularly those carried out as part of HSE's Ageing Plant work stream at major hazard sites subject to the COMAH regulations. Paul is currently the chair of a working group of the Chemicals and Downstream Oil Industry Forum (CDOIF) on Ageing Plant. He has also previously acted as chair of a working group which produced the industry guidance on integrity management.

### **MALCOLM MILLER**

**TECHNICAL AUTHORITY, SHELL**

Malcolm Miller has been continuously employed in NDT since 1975 and has gained extensive experience in many aspects of the business across a range of industries, but specifically in the upstream and downstream oil and gas markets. He has substantial technical responsibility within Shell UIO where he is their Technical Authority in aspects concerning NDT. Most of his work has been involved with the development and application of advanced NDT technology either to solve particular inspection problems or to improve inspection reliability. In particular, a lot of his effort has been devoted to non-intrusive inspection of pressure vessels.

### **MARK STONE**

**TEAM LEADER, SONOMATIC**

Mark Stone is responsible for developing Sonomatic's integrity capability and leads a team delivering integrity-related services to clients. He is a Mechanical Engineer with many years experience of working closely with NDT inspection colleagues to ensure better integration of inspection as part of more effective integrity management approaches. This experience covers planning for reliable inspection approaches and assessment of inspection results from an integrity perspective. He is actively involved in the development and application of processes for assessment, planning and evaluation of Non-Intrusive Inspection (NII) of pressure vessels.

### **PETER BATTY**

**PRINCIPAL ENGINEER, SAFED**

After thirteen years with National Vulcan/ Royal & Sun Alliance he moved to take on the Principal Engineer position with LmP Technical Services Ltd where he has been responsible for extending the services of the Engineering section and developing closer relations with customers to ensure compliance with various statutory inspection requirements. Peter is responsible for the development and certification of Written Schemes of Examination for the LmP customer base, which covers a wide range of varied plant across the Pharmaceutical, Paper & Board Industry, Speciality Chemical, Healthcare, and Manufacturing Industry.

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23 September 2014  
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[www.imeche.org/events/L6160](http://www.imeche.org/events/L6160)



11-12 November 2014  
Aberdeen

### PRODUCTION EFFICIENCY 2014: REVERSING A DECLINING TREND

This conference will demonstrate how improvements in reliability and maintenance practices, better management of turnarounds and improved human factors are starting to drive improvements in production efficiency whilst safely extending operations beyond their asset design lives.

[www.imeche.org/events/C1419](http://www.imeche.org/events/C1419)



3 December 2014  
London

### AGEING PLANT: MINIMISING HAZARDS THROUGH BETTER DETECTION TECHNIQUES

To get the best out of structures that are highly susceptible to deterioration, a greater emphasis must be placed on detection. This event will provide case studies showcasing the various different types of detection techniques that ultimately are able to reduce operating costs, reduce hazards and ensure compliance with latest guidance.

[www.imeche.org/events/S1826](http://www.imeche.org/events/S1826)

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