

ALARP 2019: RISK MANAGEMENT FOR ENGINEERING

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26 JULY 2019

Institution of
**MECHANICAL
ENGINEERS**

12 September 2019
**Crowne Plaza Birmingham City Centre,
Birmingham**

Safety and Reliability Group
Seminar

KEY SPEAKERS INCLUDE:

Reuben McDonald, Head of System Safety, Security & Assurance

High Speed Two (HS2) Ltd

Anne Davies, Partner

Gunnercooke LLP

Professor John McDermid OBE, Director, Assuring
Autonomy International Programme

University of York

Ben Shirley, HM Inspector of Railways (H&S Risk)
Office of Rail and Road

**DON'T MISS THE PRE-EVENT WORKSHOP ON
11 SEPTEMBER 2019**



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AND
RELIABILITY
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Book your place at: www.imeche.org/alarp

ALARP 2019: RISK MANAGEMENT FOR ENGINEERING

12 September 2019, Crowne Plaza Birmingham City Centre

ACCORDING TO THE HSE'S 2018 STATISTICAL SUMMARY, LAST YEAR SAW 144 WORK FATALITIES, AND 3.9 MILLION WORKING DAYS LOST DUE TO NON-FATAL WORKPLACE INJURIES. WORKPLACE SAFETY IS JUST ONE OF THE MANY DRIVERS FOR CONTINUOUSLY ASSESSING THE PERFORMANCE OF RISK MANAGEMENT IN ENGINEERING UNDER THE ALARP PRINCIPLE.

However, defining what is and is not ALARP is often challenging, and this is especially true as many engineering sectors undergo rapid technological change. The Institution of Mechanical Engineers' annual ALARP seminar will help engineers and risk managers better understand the principle and apply it to demonstrate the suitability of their safety practices. The event features a day-long programme of case study presentations, delivered by experts from industry, regulation, and academia. They will share their experiences working with ALARP, giving the audience the opportunity to hone their understanding and identify tangible improvements to safety and compliance in their day-to-day activities. With an additional focus this year on emerging technological challenges including cybersecurity and automation, this seminar is a must attend for those wishing to stay up to date with the evolving hazards stemming from increased digitalisation.

KEY PROGRAMME HIGHLIGHTS:

- The **National Cyber Security Centre** share their guidelines and frameworks for tackling growing safety threats
- The **Civil Aviation Authority** outline the implementation of Performance Based Regulation
- **Atkins** explain the importance of integrating human factors into the organisational development of safety cases
- Hear about the **European Snack Association's** ground-breaking "toolbox" for limiting the presence of contaminants
- Understand the legal framework for ALARP demonstration and protect your organisation should the worst happen with **Gunnercooke LLP**

ATTEND THIS SEMINAR TO:

- Explore tools and frameworks required to deliver robust risk assessments and demonstrate ALARP
- Hear from specialists in safety and risk management including the Civil Aviation Authority, National Centre for Cybersecurity, Office of Rail and Road and Atkins
- Take the opportunity to quiz the experts after each presentation and join the debate during our interactive Panel Session
- Receive guidance from regulators and legal experts to aid compliance and limit your exposure to risk
- Learn about the growing safety demands brought about by threats to cyber security
- Understand how automation will change the landscape for risk managers
- Hear case studies from medical device manufacturing and food processing
- Share best practice in dedicated networking breaks; exchange experiences and benchmark your processes

ORGANISING COMMITTEE:

Safety and Reliability Group
Institution of Mechanical Engineers

MEMBER CREDITS:

Pete Stewart, Director
Hydrock

Keith Miller, Member, Safety and Reliability Group
Institution of Mechanical Engineers

Steve Hillier, Asset Risk and Governance Team Leader,
E.ON Climate & Renewables (EC&R)
E.ON

WWW.IMECHE.ORG/ALARP
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PROGRAMME

THURSDAY, 12 SEPTEMBER 2019

08:30	REGISTRATION AND REFRESHMENTS
09:00	CHAIR'S OPENING REMARKS Steve Hillier, Asset Risk and Governance Team Leader, E.ON Climate & Renewables (EC&R), E.ON
	ALARP APPROACHES AND REGULATION IN CIVIL TRANSPORTATION
09:10 KEYNOTE ADDRESS	IDENTIFYING BEST PRACTICE FOR ALARP WHILE PUSHING THE BOUNDARIES OF PERFORMANCE Reuben McDonald, Head of System Safety, Security & Assurance, High Speed Two (HS2) Ltd
09:45	REGULATING FOR ALARP IN THE RAIL SECTOR Ben Shirley, HM Inspector of Railways (H&S Risk), Office of Rail and Road
10:15	CONTEMPORARY REGULATORY APPROACHES TO SAFETY IN CIVIL AVIATION Ray Forster, Performance Based Regulation Principal, Civil Aviation Authority
10:45	NETWORKING REFRESHMENT BREAK
	COMPARISON OF SAFETY CHALLENGES IN PROCESS AND DESIGN ENGINEERING CONTEXTS
11:15	MEDICAL DEVICE RISK MANAGEMENT – AN ENGINEER'S PERSPECTIVE Sylvain Jamais, Associate Director, Medical Technology Division, Cambridge Consultants (Chair, Institution of Mechanical Engineers' Biomedical Engineering Division)
11:45	ESTABLISHING BEST PRACTICE IN FOOD PRODUCTION Andrew Curtis, Scientific and Regulatory Affairs Manager, European Snacks Association
	UNDERSTANDING AND PREPARING FOR EMERGING HAZARDS AND RISKS
12:15	CYBER SECURITY RISK ASSESSMENT AND MANAGEMENT FOR SAFETY-CRITICAL SYSTEMS Lead Researcher, Systems Theoretic Risk Management, National Cyber Security Centre
12:45	NETWORKING LUNCH
13:45	SUPPORTING SAFETY CASES WITH ROBUST UNDERSTANDING OF HUMAN FACTORS Nicola Fairburn, Senior Human Factors Consultant, Atkins
14:15	EXAMINING THE APPLICATION OF ALARP TO AUTONOMOUS SYSTEMS John McDermid OBE, Director, Assuring Autonomy International Programme, University of York
	PERSPECTIVES ON LEGAL AND METHODOLOGICAL CASES FOR ALARP
14:45	LEGAL IMPLICATIONS FOR THE APPLICATION OF ALARP Anne Davies, Partner, Gunnercooke LLP
15:15	NETWORKING REFRESHMENT BREAK
15:45	DEMONSTRATING ALARP THROUGH THE WELL REASONED ARGUMENT (WRA) Keith Miller, Member, Institution of Mechanical Engineers' Safety and Reliability Group
16:15 PANEL DISCUSSION	ENSURING RIGOROUS AND ROBUST SAFETY CASES FOR 21ST CENTURY ENGINEERING CHALLENGES John McDermid OBE, Director, Assuring Autonomy International Programme, University of York Keith Miller, Member, Institution of Mechanical Engineers' Safety and Reliability Group Anne Davies, Partner, Gunnercooke LLP <ul style="list-style-type: none">• How are standards for "reasonably practicable" changing with innovations in technology and legal precedent?• How should engineers approach lifecycle risks?• How must existing risk assessment guidance and methodologies be adapted to fit present challenges?• What is the right balance of quantitative and qualitative tools to assess risk?
17:00	CHAIR'S CLOSING REMARKS
17:05	END OF SEMINAR

For the most up-to-date and detailed programme for the event, please visit:
www.imeche.org/alarp

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

PRE-SEMINAR WORKSHOP

RISK REDUCTION AND ALARP

11 September 2019, Crowne Plaza Birmingham City Centre

ATTEND OUR PRE-SEMINAR WORKSHOP ON RISK REDUCTION AND ALARP, TAKING PLACE ON 11 SEPTEMBER 2019, WHICH WILL COVER THE BASICS OF THE ALARP CONCEPT AND DEMONSTRATING ALARP ALONG WITH RISK REDUCTION THROUGH THE PROJECT LIFECYCLE.

Take the opportunity to bring your own practical examples and questions from your workplace to share and discuss with your peers.

TAKE PART IN GAME-BASED LEARNING ACTIVITIES WHICH ENABLE:

- The effective communication of simple but very important safety messages across your workforce
- The ability to deliver the messages in a memorable way, providing a long-term benefit to your business
- The workforce to relate these messages to their specific roles, to ensure tangible safety improvement

WEDNESDAY, 11 SEPTEMBER 2019

09:00	REGISTRATION AND REFRESHMENTS
09:15	WHAT IS ALARP? <ul style="list-style-type: none">• Basics of risk management• The ALARP principle• ALARP as a process• Gross Disproportion• Assessing Benefit against Sacrifice
11:00	MORNING REFRESHMENT BREAK
11:15	WHAT IS ALARP? <ul style="list-style-type: none">• ALARP in the Lifecycle• Game-Based Learning
12:15	LUNCH BREAK
13:15	DISCUSSION OF REAL-LIFE SCENARIOS <ul style="list-style-type: none">• Opportunity to bring your own real-life examples to the session and discuss potential solutions
15:15	AFTERNOON REFRESHMENT BREAK
15:30	DEMONSTRATING ALARP <ul style="list-style-type: none">• Discussion and Close-Out
16:00	END OF SEMINAR

WHO SHOULD ATTEND?

Engineers across all industry sectors should attend ALARP 2019, including:

- Mechanical Engineer
- Safety Engineer
- Package Support Engineer
- Safety Case Engineer
- Process Safety Manager
- Product Safety & Reliability Manager
- System Safety Manager
- Principal Inspector
- Design Engineer
- Director of Policy Research & Risk
- Delivery Manager
- System Designer
- Task Engineer
- Principal Scientist
- Environmental Engineer
- Technical Specialist
- Senior Reliability Manager
- Principal Asset Integrity Engineer
- Safety Case Manager

KEYNOTE ADDRESS FROM HIGH SPEED TWO (HS2) LTD:

**Reuben McDonald, Head of System Safety,
Security & Assurance, High Speed Two (HS2) Ltd**

Reuben McDonald leads the system safety, interoperability and security assessment and demonstration for the High Speed Two rail project. This includes operations, infrastructure, rail systems and rolling stock. He is an experienced risk and technology professional, having supported major international organisations to deliver their goals by developing safety management systems, performing risk assessment, developing training, auditing, performing feasibility studies and managing simulations and trials. He has managed large teams to deliver business critical activities for national and European regulators, UK public sector, European research organisations, multinational energy companies, air traffic service providers, airports, railway programmes, railway infrastructure managers and train operators.

KEY SPEAKERS INCLUDE:

Anne Davies, Partner, Gunnercooke LLP

Anne Davies is a Business crime specialist. She has handled a broad range of regulatory investigations over the last 20 years, assisting both companies and individuals to minimise the risk facing them through criminal and civil liabilities arising from internal or external investigations. She has the knowledge and resources to work on domestic and international business crime litigation matters including bribery and corruption, environmental crimes; health and Safety; product safety; white collar crime.

Professor John McDermid OBE, Director, Assuring Autonomy International Programme, University of York

John McDermid became Professor of Software Engineering at the University of York in 1987. His research covers a broad range of issues in systems, software and safety engineering. He became Director of the Lloyd's Register Foundation funded Assuring Autonomy International Programme in January 2018, focusing on safety of robotics and autonomous systems. He has advised organisations such as FiveAI, the UK MoD and Rolls-Royce. He has been actively involved in standards development, including work on safety and software standards for civilian and defence applications. He is author or editor of six books and has published about 400 papers. He became a Fellow of the Royal Academy of Engineering in 2002 and was awarded an OBE in 2010.

**Ben Shirley: HM Inspector of Railways (H&S Risk),
Office of Rail and Road**

Ben Shirley is a Specialist Inspector of Railways [H&S Risk] for the Office of Rail and Road (ORR). Ben joined ORR from mid-2016 and is responsible reviewing and assessing risk data for Britain's railways and determining appropriate regulation priorities. Ben's other work includes providing specialist risk support to Railway Inspectors and acts as the Lead Inspector for a Train Operating Company. Prior to ORR, Ben worked for Network Rail in a similar role and owned the company's risk based process for organisational change management.

DELEGATE FEEDBACK FROM THE PREVIOUS EVENT:

“““

Well organised and structured event allowing the sharing of best practice to improve safety across the entire industrial enterprise in the UK

Safety Lead, Rolls-Royce

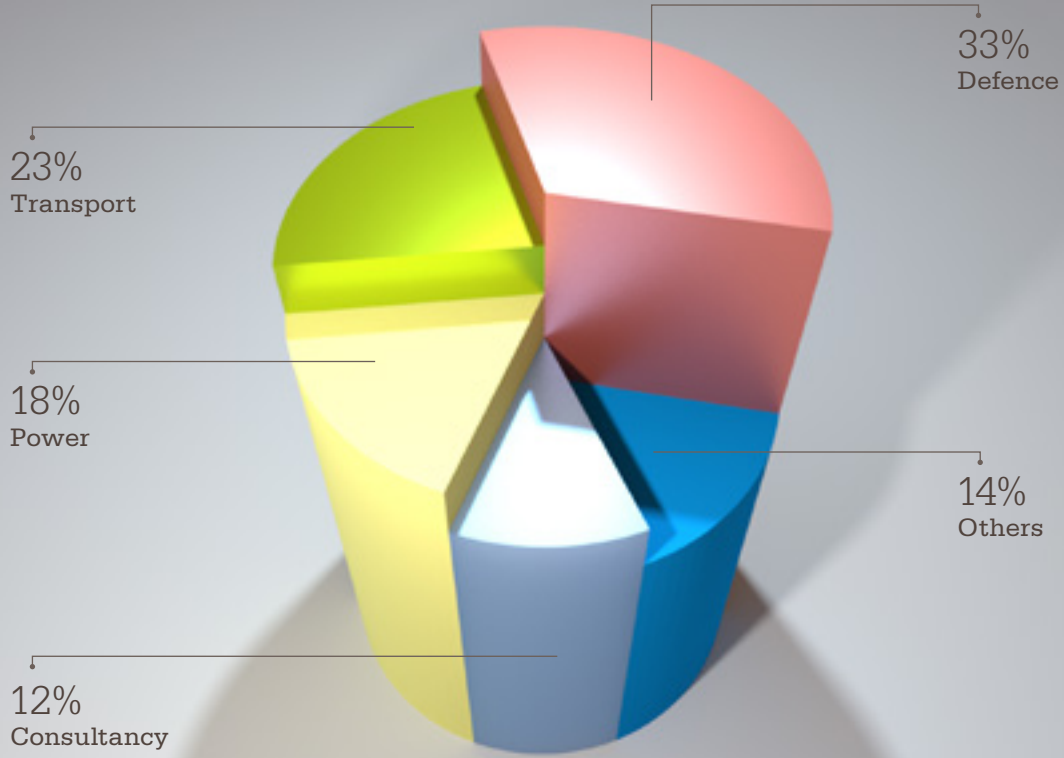
“““

Excellent event which really dissected current practices, examined the changes in industry and gave insight to how risk assessment practices can improve accordingly

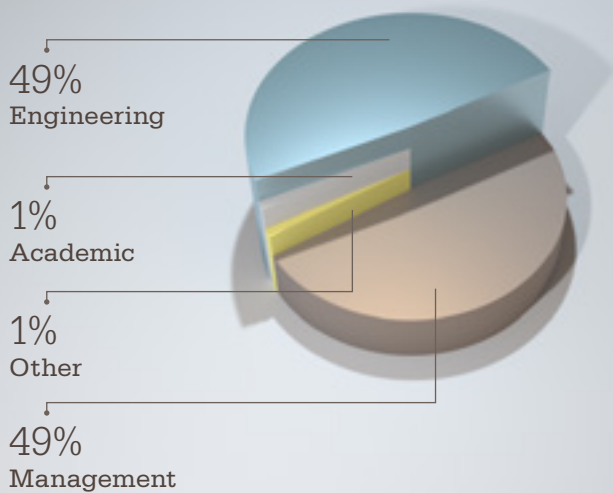
**Project Engineering Manager,
Sellafield Ltd**

WHO ATTENDS ALARP? ATTENDEE BREAKDOWN

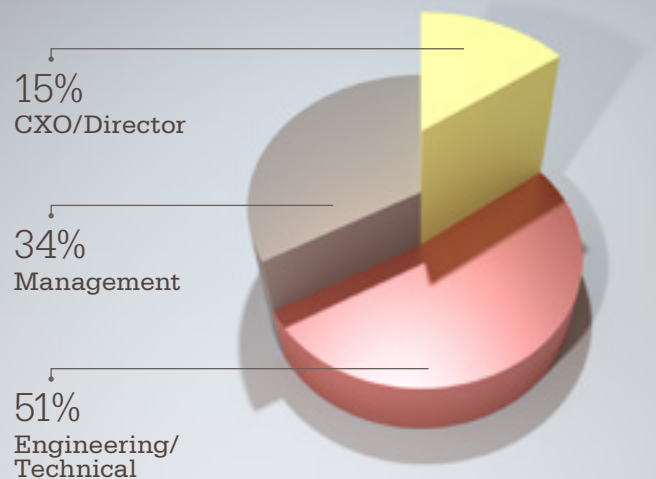
ATTENDEE SECTOR



ATTENDEE FUNCTION



ATTENDEE SENIORITY



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DELEGATE FEEDBACK FROM THE PREVIOUS SEMINAR

““”

A very informative event which facilitates discussions around the challenging topic of ALARP. A great way to share knowledge and experience between engineering professionals from a range of business sectors

Senior Safety Consultant, Frazer-Nash Consultancy

““”

ALARP 2018 was above expectation and every speaker provided an interesting viewpoint on ALARP issues. This seminar is relevant to a wide range of specialists working in safety, security, environment and other related disciplines - an excellent day

Safety Engineer, CASE Associates Limited

““”

Well organised and thought-provoking event that challenged me on how I think about managing design risk

Design Development Manager, SSE

““”

Good to learn from speakers and delegates alike about up to date developments and thinking around ALARP

Asset Strategy and Risk Specialist, National Grid

““”

Excellent, informative presentations, useful exposure to ALARP in differing contexts

Senior Consultant, Reactor and Radiation Physics, Wood

““”

Good value and quality - focused on exactly the subject

Senior Engineer – Maintenance, Royal National Lifeboat Institution

““”

ALARP 2018 provided context from other industries which I found extremely useful in approaching the specifics of risk and safety in software

CEO, Codethink Limited

More than 90% of attendees would recommend their colleagues to join the ALARP seminar

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E: SPONSORSHIP@IMECHE.ORG

HOW TO BOOK YOUR PLACE

FEES AND CHARGES

Registration fees include entry to the sessions, refreshments and a copy of the conference proceedings.

Delegate Type	EARLY BIRD RATE Until 26 July 2019	STANDARD RATE
Member, Institution of Mechanical Engineers / Supporting Organisation – Seminar only	£289 + VAT = £346.80	£329 + VAT = £394.80
Non-member – Seminar only	£359 + VAT = £430.80	£399 + VAT = £478.80
Full-time Student/Retired – Seminar only	£89 + VAT = £106.80	£99 + VAT = £118.80
Member, Institution of Mechanical Engineers / Supporting Organisation – Workshop and Seminar	£478 + VAT = £573.60	£558 + VAT = £669.60
Non-member – Workshop and Seminar	£618 + VAT = £741.60	£698 + VAT = £837.60

THREE WAYS TO BOOK

1 online:
www.imeche.org/alarp

2 email:
eventenquiries@imeche.org

3 phone:
+44 (0)20 7973 1251

Please read the information listed below as each booking is subject to the Institution's standard terms and conditions.

CONDITIONS OF BOOKING

Completed application forms should be returned to the address above, along with the correct payment. Attendance at the event will be confirmed on receipt of the full balance. All participants are advised to bring a copy of their confirmation with them on the day, to ensure the fastest possible entry.

SPECIAL REQUIREMENTS

Please inform us of any special requirements, i.e. dietary or access, on the relevant section of the booking form or email eventenquiries@imeche.org

Cancellation

For a refund (minus £25+VAT admin charge), cancellations must be received at least 30 days prior to the event. Replacement delegates are welcome at any time. The Institution reserves the right to cancel any event. In this case, the full fee will be refunded unless a mutually convenient transfer can be arranged. In the event that the Institution postpones an event for any reason and the delegate is unable or unwilling to attend on the rescheduled date, they will receive a full refund of

the fee paid. The Institution is not responsible for any loss or damage as a result of a substitution, alteration or cancellation/postponement of an event. The Institution shall assume no liability whatsoever if this event is cancelled, rescheduled or postponed due to a fortuitous event, Act of God, unforeseen occurrence or any other event that renders performance of this conference impracticable, illegal or impossible. For the purposes of this clause, a fortuitous event shall include, but not be limited to: war, fire, labour strike, extreme weather or other emergency.

Please note that while speakers and topics were confirmed at the time of publishing, circumstances beyond the control of the organisers may necessitate substitutions, alterations or cancellations of the speakers and/or topics. The Institution reserves the right to alter or modify the advertised speakers and/or topics if necessary without any liability to you whatsoever. Any substitutions or alterations will be updated on the event's webpage as soon as possible.

LIABILITY

The organisers do not accept liability for any injuries or losses of any nature incurred by delegates and/or accompanying persons, nor for loss or damage to their luggage and/or personal belongings.

CONFERENCE VENUE

Crowne Plaza Birmingham City Centre
Central Square
Holliday Street
Birmingham
B1 1HH

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- **Improve** perception of your brand
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OTHER EVENTS TO LOOK FOR



CRANE SAFETY 2019

17 September 2019, London

Hear insights from leading construction companies about recent projects and practical guidance from the industry regulator. Learn industry best practice and how your organisation can address the challenges of risk and incident reduction, cost savings vs maintenance and compliance with safety legislation. Develop effective strategies to make your lifting operations as safe, timely and cost-efficient as possible.

www.imeche.org/cranesafety2019



SIMULATION AND MODELLING 2019

17–18 September 2019, Birmingham

This conference will provide a forum to discuss the latest developments being made with computer aided and virtual engineering. Explore the advances being made with integration, optimisation and validation, from design stage right through to manufacturing.

www.imeche.org/simmod2019

The Institution of Mechanical Engineers organises over 120 events a year, including free-to-attend lectures as well as conferences, seminars, annual luncheons and dinners. Please visit www.imeche.org/events for the complete list of events.

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