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60th anniversary NEA
NUCLEAR ENERGY AGENCY

CNRA–MDEP 2018 Nuclear Supply Chain Management Workshop

5-6 November 2018
NEA Headquarters
Boulogne-Billancourt

PROGRAMME

Background and objectives

The OECD Nuclear Energy Agency (NEA) Committee on Nuclear Regulatory Activities (CNRA) and the Multinational Design Evaluation Programme (MDEP) are the sponsors of this international workshop on nuclear supply chain management.

The workshop brings together regulators and stakeholders, including industry representatives, standard development organisations (SDOs), technical support organisations (TSOs) and other international organisations to discuss supply chain oversight challenges in a globalised nuclear industry.

Increasingly, vendors, including companies with limited experience in the nuclear industry, are entering the market to supply parts and components for nuclear power plants (NPPs) for both safety and non-safety applications. In this context, globalisation of the nuclear supply chain and new manufacturing technologies raise unique regulatory challenges. For example, the risk of Counterfeit, Fraudulent and Suspect Items (CFSIs) entering the supply chain present an increasing challenge. Participants will consider perspectives beyond a traditional supply chain assurance view to include how effective oversight approaches and establishment of the required safety culture across the licensee's "extended enterprise" can reduce risks and improve nuclear safety.

Internationally, many NPPs are facing increasing demands related to ageing and obsolescent components. A viable solution for NPPs is to purchase commercial components and have them dedicated to meet safety standards. This solution is called "commercial-grade dedication". This process provides reasonable assurance that components purchased from a commercial supplier are equivalent to nuclear grade items. There is increasing interest by the nuclear industry to use commercial parts and services in safety-related applications beyond what regulatory frameworks initially envisioned under commercial-grade dedication programmes. In addition, reverse engineered approaches and additive manufacturing techniques (3D printing) are introducing additional benefits and risks. These relatively new topics create additional oversight challenges for regulators.

Workshop participants will have the opportunity to meet their international counterparts to discuss the various regulatory approaches to these topics. The workshop will highlight emerging risks and provide recommendations to further improve supply chain management and oversight arrangements and consider the need for additional regulatory tools, assessments or international guidance.

The workshop results should enable participants to review their national policies and oversight structures, to identify potential gaps to international commendable practices and to initiate optimisation of their supply chain management arrangements and oversight programmes.

The recommendations and conclusions from the workshop will be compiled in a workshop proceedings report. The proceedings will serve to inform ongoing activities of the MDEP VICWG and provide the basis for the CNRA to decide on future activities or tasks, as necessary.

Workshop plan/structure

The workshop will span two days and include plenary presentations, topical sessions and a moderated panel discussion session at the end. The presentations will be used to lay the foundation for the discussions during the topical sessions and the panel discussion. The topical sessions will address the following issues:

- Global supply chain oversight challenges
- Counterfeit, Fraudulent and Suspect Items (CFSI) lessons learnt
- Advancing early integration of safety culture in the supply chain
- Regulatory approaches for equipment qualification and commercial-grade dedication
- Enhancing international co-operation to prepare for new technologies and emerging challenges

These sessions will aim at identifying emerging risks, sharing commendable practices, lessons learnt, and recommendations for reducing risks and promoting safety culture principles in the global nuclear supply

chain. The workshop will culminate with a moderated panel discussion to reflect on the challenges discussed during the workshop and recommend opportunities for international activities to prepare for new technologies by enhancing the effectiveness of regulatory guidance for the oversight of the licensee's nuclear supply chain management. For instance, by highlighting areas where more effort is needed to develop guidance for a risk-informed graded approach for regulatory oversight arrangements in order to improve effectiveness and prepare for the expected demands of new technology.

Organisation and participation

Participation

Participation in the workshop is open to nuclear industry representatives for new and operating reactors, international organisations and regulatory organisations responsible for supply chain oversight, safety culture, operating experience, and vendor inspection programmes. Participation by new reactor design vendors, nuclear suppliers, operating reactor licensees, utilities with multinational projects, and supply chain management professionals is strongly encouraged. Invitations have been sent to the following groups.

- CNRA members, particularly the Operating Experience, Inspection Practices and Safety Culture working groups
- MDEP members
- Representatives from standard development organisations (SDOs)
- Industry representatives involved in supply chain activities
- International organisations and associations, particularly IAEA, WANO, WNA
- NEA member countries' nuclear regulatory organisations
- Technical support organisations (TSOs) and third-party organisations

Language

All presentations, discussions and meeting documents will be in English.

Organising committee

The members of the Organising Committee wish to acknowledge the excellent contributions of our distinguished panellists and plenary speakers that have so generously given their time and attention to ensuring this workshop is successful. Special appreciation is given to the Workshop Chairman, Mr Julien Collet, ASN Deputy Director General. The Organising Committee is grateful for the planning, coordination and the arrangements made by the NEA staff, Ms Belkys Sosa and Ms Akane Schmitz-Fraysse, in the preparation of this workshop.

Special acknowledgement is given to all the members of the Organising Committee who agreed to facilitate and coordinate the sessions, including:

- Mr Stuart Allen, Office for Nuclear Regulation (ONR),
- Ms Kerri Kavanagh, Nuclear Regulatory Commission (NRC)
- Mr Olivier Allain, Nuclear Safety Authority (ASN)
- Mr Greg Kaser, World Nuclear Association (WNA)
- Ms Belkys Sosa, NEA
- Ms Akane Schmitz-Fraysse, NEA

Practical arrangements

Venue

The workshop will be held in the Auditorium at NEA Headquarters, 46 quai Alphonse Le Gallo, 92100 Boulogne-Billancourt, France.

Workshop programme

Day 1 | Monday, 5 November 2018

8:30-9:00: Registration and welcoming coffee

9.00-9.15: Welcome and opening remarks

Workshop Chair: **Mr Julien Collet**, ASN Deputy Director General

NEA Director-General: **Mr William D. Magwood, IV**

9.15-10.00: Plenary session: Emerging Challenges with globalisation of the nuclear supply chain

Rolls-Royce is a world leading supply chain provider operating across a diverse and technically demanding range of industries including the nuclear supply chain. In the United Kingdom alone, Rolls-Royce has over 300 certified nuclear suppliers in a supply chain that Rolls-Royce has been active in for over 50 years. The guest speaker will discuss the challenges facing global suppliers when providing nuclear equipment to countries developing their nuclear supply chain and local manufacturing resources and discuss emerging challenges with new manufacturing technology and small modular reactors (SMR).

Plenary Speaker: **Mr Chris Tierney**, Executive Vice President, Rolls-Royce, United Kingdom – *Emerging Challenges with Globalisation of a Nuclear Supply Chain*

10.00-10.30: Coffee break

10.30-12.00: Session 1: Global supply chain oversight challenges

The objective of this session is to provide an overview of the range of challenges facing industry (manufactures/vendors/suppliers) and national regulators in ensuring adequate oversight of the licensee's extended enterprise global supply chain management. Panellists could share anticipated challenges given new technologies and the globalisation of the supply chain.

- How diversification of manufactures, modular fabrication, innovative manufacturing techniques, SMR, and other new technologies are set to impact the global supply chain in the future
- CFSI concerns
- Safety culture issues
- Equipment qualification, commercial grade-dedication and reverse engineered components

Session co-ordinator: **Mr Stuart Allen**, VICWG Chair, ONR

Panellists:

Mr Stuart Allen, VICWG Chair, ONR – *Regulation of the Civil Nuclear Industry Supply Chain, international co-operation through the MDEP VICWG*

Ms Paula Madill, Director, EMEA Fuels and Manufacturing Sourcing Global Supply Chain Solutions, Westinghouse, UK

Mr Jeongsun Kim, Senior Manager of QA Team, Doosan Heavy Industries & Construction Co., Ltd., Korea – *Supplier Evaluation Program*

Mr Chris Tierney, Executive Vice President, Rolls-Royce

Mr Henri Paillère, NEA, Head Technical Secretariat for IFNEC – *Global supply chain & localisation, outcomes of the IFNEC Nuclear Supplier & Customer Countries Engagement Group activities*

12.00-13.30: Lunch break

13.30-15.30: Session 2: Counterfeit, Fraudulent, and Suspect Items (CFSI) lessons learnt

The objective of this session is to discuss the lessons learnt from recent experiences with CFSI. Panellists should share the most important challenges and lessons learnt regarding CFSI and provide their insights and recommendations.

- Elements of a comprehensive oversight program to protect against CFSI risk
- Understanding where the risks are, and why enhanced vigilance is also required for non-safety-related components during construction and operation
- Strategy and plans to monitor and evaluate potential CFSI
- Communicating the adverse impact of CFSI on nuclear operations and discussing best practices to work with vendors and suppliers to prevent issues
- Rebuilding the trust between regulators and the vendor/industry post CFSI issues

Session co-ordinator: **Mr Olivier Allain**, ASN

Panellists:

Mr Greg Kaser, Senior Project Manager, WNA – *CFSIs in perspective and the nuclear industry's response*

Mr Luc Berhault, Technical Director of the EDF Manufacturing Inspection Body, France – *Implementation of an action plan to fight against fraudulent and counterfeit items within EDF*

Mr Simon Emeny, Lloyd's Register, UK – CFSI – *Prevention before detection*

Mr Weoltae Kim, KINS – *Regulatory Actions and Follow-suit Measures against the Korean NPPs' CFSI Issues*

Mr Julien Husse, Head of the Inspections Support Mission, ASN, presents the strategy of control carried out at ASN to address CFSI issues

15.30-16.00: Coffee break

16.00-17.30: Session 3: Advancing early integration of safety culture in the supply chain

The objective of this session is to discuss the impact of safety culture on the integrity of the supply chain, i.e. at each level of the supply chain.

- Identifying the attributes of a nuclear grade supplier in terms of safety and quality management responsibilities
- Ensuring that a positive nuclear safety culture is integrated within the supply chain in the early stages
- Evaluating how the interfaces between the different parts of the supply chain collaborate to ensure safety
- Discussing where the likely roadblocks will be; and recommending a plan of action

Session co-ordinator: **Ms Molly Keefe-Forsyth**, NRC

Panellists:

Mr Dejun Wang, Project Officer, NNSA, People's Republic of China – *The Establishment of nuclear safety culture for equipment vendors in China*

Mr Kenneth Owen, Commercial Director, EDF Energy, Hinkley Point C (HPC), United Kingdom

Ms Molly Keefe-Forsyth, Human Factors/Safety Culture Specialist, NRC – *Safety culture for nuclear power plant vendors and suppliers*

Mr Seppo Mahla, Inspector, STUK, Finland – *Safety culture observation in NPPs and NPP projects in Finland*

Ms Céline Poret, Research Engineer in Ergonomics/**Ms Sophie Beauquier**, Deputy Head of the Human and Organizational Factors Section, IRSN, France – *Considering safety culture over the course of the supply chain: IRSN's approach for R&D and expertise*

17.30-17.45: Closing – Day 1

18.00: Cocktail reception (Espace Terrasse)

Day 2 | Tuesday, 6 November 2018

8.30-9.00: Welcoming coffee

Workshop Chair: **Mr Julien Collet**, ASN Deputy Director General
Welcome participants to Day 2 of the workshop.

09.00-11.00: Session 4: Regulatory approaches for equipment qualification and commercial grade dedication

The objective of this session is to discuss regulatory challenges with commercial-grade dedication (CGD), equipment qualification, and reverse engineered components.

- Understanding the process for commercial-grade dedication (CGD) and equipment qualification
- Identifying critical characteristics and verifying acceptability by inspections, tests, or analyses by the purchaser or third-party dedicating entity
- Understanding the acceptance process for items and services
- Evaluating how the interfaces between the different parties of the supply chain work to ensure quality management
- Assessing obsolescence issues and the risks of reverse engineering

Session co-ordinator: **Ms Kerri Kavanagh**, VICWG Vice Chair, NRC

Panellists:

Mr Marc Tannenbaum, Technical Executive, Electric Power Research Institute (EPRI), United States – *Challenges with Commercial Grade Dedication, Equipment Qualification, and Reverse Engineering*

Mr Charles Wadjou, Lead Manufacturing Engineer, EDF/DIPNN, France – *Manufacturing Monitoring & In shop Inspection – Alternative Approach to the EDF Doctrine*

Mr Oliver Martin, Project Leader, European Union (European Union), Joint Research Centre – *European Commission Project "Modernisation & Optimisation of the European Nuclear Supply Chain"*

Ms Kerri Kavanagh, VICWG Vice Chair, NRC – *US regulatory oversight of commercial-grade dedication*

11.00-13.00: Lunch break

13.00-15.00: Session 5: Enhancing international co-operation to prepare for new technologies and emerging challenges

The objective of this session is to provide an overview of the current international activities and tools available for national regulators to ensure adequate oversight of the nuclear global supply chain. Panellists could also share anticipated regulatory challenges given modularisation, three-D printing, new manufacturing technologies, SMR, advanced reactors, and the globalisation of the supply chain.

Session co-ordinator: **Mr Greg Kaser**, WNA

Panellists:

Mr Michael Finnerty, Deputy Chief Nuclear Inspector, ONR – *ONR Regulation on nuclear Supply Chain*

Dr Pekka Pyy, Senior Expert, Organization & Management Systems, International Atomic Energy Agency (IAEA) – *IAEA activities in the area of supply chain*

Mr Denis Bourguignon, Nuclear technical and development manager, Bureau VERITAS, France – *Challenges in maintaining consistent high quality in an international supply chain*

Mr Philippe Malouines, Expert in Nuclear Pressure Equipment Codes and Regulations, French Nuclear Institute of Nuclear Sciences and Technologies (INSTN)

Mr Marc Tannenbaum, Technical Executive, EPRI – *Challenges Associated with Implementing New Technologies*

15.00-15.30: Coffee break

15.30-17.20: Panel discussion session – International regulatory activities in the oversight of the global nuclear supply chain

The objective of this session is to reflect on the challenges discussed during the topical sessions and highlight areas where more effort is needed to develop guidance for a risk-informed graded approach for regulatory oversight arrangements in order to improve effectiveness and prepare for the expected demands of new technology in the nuclear industry's extended enterprise. The aim is also to identify opportunities to further enhance international co-operation for regulators to ensure adequate oversight arrangements for the effective management of the nuclear supply chain and related vendor inspection activities.

Session moderator: **Mr Stuart Allen**, ONR

Panellists:

Mr Julien Collet, ASN, Deputy Director General, MDEP STC Chair, and CNRA Member for France

Mr Michael Finnerty, Deputy Chief Nuclear Inspector, ONR and MDEP Policy Group Chair

Mr Alexey Ferapontov, Deputy Chairman, Rostechnadzor, Russian Federation

Mr Janne Nevalainen, Project Manager, Nuclear Reactor Regulation, STUK

Mr Franck Lignini, World Nuclear Association, Vice Chair of CORDEL, Framatome

17.20-17.30: Closing session

The chair of the workshop will provide a brief summary of the workshop and discuss the key messages and recommendations from the Panel Discussion Sessions on Day 2.

Workshop Chair: **Mr Julien Collet**, ASN Deputy Director General

17.30: Conclusion

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