***QUESTIONNAIRE A:***

***Oversight Framework regarding Licensee’s Cross Cutting Issues***

*COUNTRY: …………………………*

**NOTES**

Only one response per country is required. If more than one person from your country is participating, please co-ordinate the responses accordingly.

Submittals should be sent by email to: **yuji.kumagai@oecd-nea.org** and **Stephanie.RUIZ@oecd-nea.org** by **30/06/2024**.

**FOREWORD**

Underlying issues associated with specific inspection findings and a licensee’s organizational performance may include the licensee’s safety culture, human performance, human and organisational factors, integrated management system and quality management system (QMS) (including problem identification and resolution (PI&R)). Therefore, issues such as organisational capability, management of organisational change, supply chain management, leadership and governance, organisational learning, internal oversight capability, etc. have long been a focus of attention.

Hence, as part of the WGIP activities, related workshops on these issues were held in Germany in 2018, the Netherlands in 2010 and, Canada in 2006. Through a series of these workshops, the member countries shared methodologies for inspecting these issues in the form of commendable practices.

In this paper, we refer to these issues as cross-cutting-issues (CCIs) and define CCIs as follows.

**Cross-Cutting Issues (CCIs)**: CCIs are underlying aspects or observable deviation from standard status that are widely spread in the licensee’s organisation, management system or safety culture that constitute weaknesses/deficiencies which may contribute to various outcomes that could be positive or negative.

Given the progress with identifying commendable practices made in previous workshops, we are ready to study CCIs in a more tangible manner based on experience gained through real-world oversight activities such as inspection findings and subsequent regulatory actions. Each country can make a meaningful contribution in this survey by sharing their experience of dealing with CCIs in their inspection and oversight programs. Capturing differences in oversight approaches will be useful, given that CCIs have unique characteristics and their performance is difficult to measure in a quantitative manner.

In this paper, regulatory oversight approaches to CCIs are categorized into the following two ways (it might be difficult to distinguish the two approaches clearly, but please follow the categorization for the sake of discussion).

**Reactive Approach**: Additional/Supplemental/Unplanned regulatory oversight, inspection, or any other action related to CCIs in reaction to a finding or event

**Proactive Approach**: Planned/Routine oversight, monitoring, inspection, or any other proactive action to identify and address licensee’s CCIs

**Section 1 – Reactive Approach**

**Problem awareness**

In some countries, the RB uses a Reactive Approach to address CCIs. Insight gained through this experience will be useful to member countries.

Q1-1 Does your RB have a reactive approach to addressing CCIs?

*Yes / No*

*If yes, please describe criteria that leads your RB to apply the reactive approach?*

Q1-2 Please describe one significant case of a reactive approach applied by your RB to address a CCI (including actions from licensees and RB).

Q1-3 What was the method to determine CCIs causing deviation?

Q1-4　Did the RB take action or intervene as a result of the CCIs identified by the reactive approach?

*Yes/No*

*What actions, including enforcement, has the RB taken in this case?*

Q1-5 After your RB applied a reactive approach to the licensee’s CCIs, how did you assess the effectiveness of the licensee corrective actions regarding the CCIs?

Q1-6 What lessons were learned by the RB related to CCIs in this case? Were there any changes made to the RB’s oversight system related to CCIs?

**Section 2 – Proactive Approach**

**Problem awareness**

As a RB, it is a common goal to avoid a safety significant issue, incident, or accident in preventative manner. A Proactive Approach might be useful to identify an issue before it becomes a safety significant issue.

Q2-1 Does your RB have a proactive approach to addressing CCIs?

*Yes / No*

Q2-2 1. How does your RB address CCIs (or potential CCIs) in the proactive approach and what are the criteria to identify CCIs?

Q2-3 What sort of communication does your RB have with the licensee when identifying potential CCIs (for example: additional monitoring, assessments, letters, formal or informal meetings)? Please give an example of a specific case.

Q2-4 Has your RB conducted additional regulatory actions based on a result of the proactive approach that led RB to Reactive approach?

*If Yes, please describe one specific case.*

Q2-5 Which challenges or benefits has your RB has experienced while applying a proactive approach?

Q2-6 How has your RB overcome the challenges identified in Q2-5?

Q2-7 After applying the proactive approach and following additional actions, how does your RB evaluate the effectiveness of the RB’s actions?

Q2-8 After your RB has applied a proactive approach to the licensee’s CCIs, how do you assess or monitor the effectiveness of the licensee corrective actions regarding the CCIs?

Q2-9 What lessons were learned by the RB related to CCIs in this case? Were there any changes made to the RB’s oversight system related to CCIs?

Q2-10 How do you ensure CCIs are properly considered by inspectors in their daily work?

***QUESTIONNAIRE B:***

***Inspection of Licensee’s Readiness for External Events that could result in a station blackout***

*COUNTRY: …………………………*

**NOTES**

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Submittals should be sent by email to: **yuji.kumagai@oecd-nea.org** and **Stephanie.RUIZ@oecd-nea.org** by **30/06/2024**.

**FOREWORD**

This task meets Challenge 3 of CNRA Operating Plan and Guidelines 2015-2017: “safe operation of current nuclear installations”.

**This topic explores the range of conditions and events (design basis and beyond design basis external events) of a facility’s ability to withstand external events such as flooding, high winds, earthquake, grid failure, external fire, or any event, which could also result in a station blackout (SBO) (IAEA SSG 34 and IAEA-TECDOC-1770).** The Regulatory Body (RB) may carry out inspections of facilities and activities to verify that the current configuration and preparations by licensees of their safety systems, structures and components (SSCs) will meet the requirements to withstand external events and station blackout. The licensee may aim to secure improved safety by introducing new components, systems, upgrades and procedures. The RB may verify that the measures taken by the licensee improve the safety and that the safety is not jeopardised as a result of those decisions.

This task will build on the results of the Chattanooga workshop (<http://www.oecd-nea.org/nsd/docs/2014/cnra-r2014-8.pdf> ) and post Fukushima and other related actions.

**QUESTIONNAIRE**

For the preparation of the workshop, participants are invited to supply their national inspection approaches used according to the following questionnaire:

1. **SBO, severe weather and/or beyond design basis external events regulations, rules or requirements for NPPs.** 
   1. Does your country have regulations, rules or requirements related to coping for a SBO, severe weather and/or beyond design basis external events? If so, provide examples. What is the government entity (nuclear regulatory body and/or other government organization) that is responsible for enforcing those requirements?

* 1. Do NPPs distinguish between plant features (SSCs or procedures) used to mitigate design basis external events and beyond design basis external events? If so, how does the regulatory treatment (licensing, inspection, enforcement) differ between the two?
  2. Do NPPs in your country have equipment or special structures that are dedicated (or licensed) to mitigate the consequences of a SBO caused by severe weather or beyond design basis external events? If so, provide examples of the requirements that NPPs must follow for scenarios caused by severe weather or beyond design basis external events. Please provide some examples including a brief description of a) permanent, b) temporary (e.g., provided from off-site), and c) mobile equipment (e.g., equipment from onsite; power sources provided by portable batteries, diesel generators, gas turbines, water provided by fire pumper trucks, etc.).
  3. Please describe any regulations or requirements regarding preventive maintenance and testing of a) permanent, b) temporary, and c) mobile equipment (if applicable).

1. **Inspections covering SBO, severe weather and/or beyond design basis external events.**
   1. Describe your RB inspection activities regarding a) permanent, b) temporary, and c) mobile equipment used to mitigate the consequences of a SBO, severe weather and/or a beyond design basis external event (e.g., inspection of preventive maintenance, periodic testing, training, etc.).
   2. Does your RB have specific inspection procedures or guidance in place for verifying the readiness of equipment used to mitigate the consequences of severe weather and/or beyond design basis external events that could lead to SBO? Describe how the inspection is performed, the frequency and provide some examples.
   3. Does your RB use additional external/internal specialists to support inspections on severe weather and/or beyond design basis external events that could lead to SBOs? If so, please provide an example and field of expertise.
   4. Do your NPP licensees have abnormal operating procedures, emergency operating procedures, and/or severe accident management guidelines for mitigating the effects of SBO? Do these procedures consider the conditions from severe weather and/or beyond design basis external events? If so, describe RB inspection activities to verify operator use of those procedures?
   5. Do your NPP licensees conduct exercises/training of such scenarios? If yes, describe RB inspection activities conducted/performed during these exercises/training.
   6. Pease describe your RB inspection activities related to NPPs preparatory steps for impending severe weather conditions (e.g., extreme hot/cold temperatures, heavy rainfall, high/low tides, floods, high winds, etc.).
2. **Reporting of SBO, severe weather, and/or beyond design basis external events.** 
   1. Are licensees required to report SBO, severe weather, and/or beyond design basis external events that impact NPP operations or safety margins? If so, provide examples and describe the process for reporting. If the licensee is not required to report, are there other means for the RB to be informed about the event.
   2. Describe the process followed by your RB for evaluating SBO, severe weather, and/or beyond design basis external events reported by licensees, including the use of corrective actions and any applicable lessons learned. Please provide your best example (or the event with the highest safety impact).
   3. Describe the process your RB takes in preparation for and during SBO, severe weather, and/or beyond design basis external events.
3. **Risk considerations for SBO, severe weather and/or beyond design basis external events.** 
   1. Do your NPP licensees use a risk-informed or risk-based approach for assessing issues related to SBO, severe weather and/or beyond design basis external events? If so, how does your RB inspect this?
   2. Do your NPP licensees assess the impact of risk (e.g., the increased likelihood of fuel/core damage) when removing SBO-related equipment from service or other equipment used to mitigate the effects of an SBO, severe weather and/or beyond design basis external events?
   3. Do your NPP licensees assess the impact of risk or risk increase, particularly increased likelihood of SBO, based on impending severe weather? Are changes in work control or work management performed based on this assessment (e.g., allowed outage times, preventive maintenance rescheduling, etc.)?
4. **Operating Experience for SBO, severe weather and/or beyond design basis external events.**

5.1 Describe the licensees use of domestic and international operating experience for SBO, severe weather and/or beyond design basis external events.

5.2 Describe how your regulatory body inspects, assesses, or evaluates the use of operating experience for SBO, severe weather and/or beyond design basis external events.

1. **The effectiveness of the licensee's emergency plan for external events that could result in a station blackout.**
   1. Give a brief overview of your NPP licensee's emergency plan for external events that could result in a station blackout.
   2. What is the regulatory oversight program to ensure the NPP licensee adequately implements and performs the emergency plan for external events?
   3. Is there any valuable feedback or lessons learned from the regulatory inspection of the NPP licensee's emergency plan to improve its effectiveness?
   4. If you have any recent experience after the Fukushima Daiichi accident in 2011 in which your NPP experienced a loss of offsite power or loss of ultimate heat sink, including near-misses, due to an external event, describe the event. Please describe your regulatory actions during and after the event. Were there any lessons learned from the event that should be shared with WGRO members?
2. **Are there any other specific topics you would like to discuss at the workshop**?

***QUESTIONNAIRE C:***

***INNOVATIVE APPROACHES TO REGULATORY OVERSIGHT***

*COUNTRY: …………………………*

**NOTES**

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Submittals should be sent by email to: **yuji.kumagai@oecd-nea.org** and **Stephanie.RUIZ@oecd-nea.org** by **30/06/2024**.

**FOREWORD**

Innovation can be described as development and/or implementation of new technologies or new/modified approaches in products, services or processes or a combination of all three. E.g., regulatory decisions, permits, authorisations, internal procedures/guidance, and internal & external communications.

The Committee on Nuclear Regulatory Activities (CNRA) has approved a topic relating to identification of innovative approaches to regulatory oversight for consideration at the inaugural International Nuclear Regulatory Oversight Workshop (INROW) to be held in November 2024 in Japan under the Working Group on Reactor Oversight (WGRO).

**Objective**

Identify, learn, and share good practices and innovative approaches/ideas focused on the regulatory oversight areas identified within the scope.

**Scope**

Use of modern technology in preparing inspection/oversight plans such that oversight effort is better focused, and risk informed.

Use of regulatory guidance that delivers consistent outcomes – future proofing guidance (making it fit for purpose considering recent and expected advancements in technology and approaches).

Innovative inspection techniques for inspectors (artificial intelligence (AI), augmented and virtual reality etc)

Innovative approaches resulting from oversight/regulatory works on Small Modular Reactors (SMRs) and Advanced Modular Reactors (AMRs)

**QUESTIONNAIRE**

1. **General approach to innovation**
   1. Briefly describe what innovation means to your regulatory body (RB).
   2. Which areas of regulatory activities or competence are affected by innovation for your RB?
   3. Please describe how your RB considers/is considering innovative approaches to its oversight programmes? E.g., any special initiatives, projects and/or tools.
   4. Do you have any specific, focussed resources/specialists to develop, implement and maintain innovative tools. E.g., hardware, software applications supporting oversight activities. If so, please describe.
   5. Briefly describe what barriers inhibit adoption of innovative tools/techniques within your RB. E.g., any legal (employment law), legislative, or regulatory framework related barriers, human/financial resources, cyber security considerations etc.
   6. Does your RB utilise AI or any other similar approach to analyse, trend, and follow-up events and/or develop regulatory findings arising from oversight activities? If so, please describe.
   7. Has your RB adopted any innovative approaches or tools for formal training, competence management/evaluation, mentoring, on the job training of inspectors? E.g., use of virtual/augmented reality, online training. If so, please describe.
   8. How does your RB manage the training requirements for new approaches or technology to ensure that inspectors/other staff from the RB obtain the perceived benefits from that change?
   9. How does your RB identify, collate, manage new ideas/new technological advances in the industry? E.g., collaboration with peers, industry, research initiatives (internal and external), task groups etc.
   10. Do the licensees in your country use new technologies for inspection/maintenance activities at their facilities? If yes, please state those new technologies and the regulatory challenge associated with those. For example, robots, drones etc?
2. **Planning approach for the development of inspection programmes.**
   1. Please describe what, if any, new tools or techniques the RB utilises in developing/reviewing the oversight plans and ensuring that these remain risk informed. E.g., specialist IT tools, multidisciplinary/team approach, other. Is this approach consistent across the RB?
   2. How has your RB’s regulatory oversight approach changed or evolved in the past five years? Which changes if any arising from COVID have been sustained? Please provide specific examples, where possible.
   3. Does your RB have any current or future plans to modify/innovate your oversight planning processes? If so, please describe.
   4. Has your RB’s approach to identifying the level of resource to be deployed at each licensed site changed/evolved because of innovation/modified approaches? E.g., has the level of resource reduced/increased as a result of adopting an innovative approach/tool(s). If so, please describe.
   5. Please describe what, if any, new modern approaches have aided your RB in incorporating licensee feedback into the development of the oversight programmes and implementation of modern approaches. E.g., surveys, web portals, use of Apps, power BI etc.
3. **Approach to undertaking oversight activities/implementing oversight programmes.**
   1. Please describe any significant, relatively recent, changes to your approach in undertaking regulatory oversight activities. Have any changes been driven by technological advances or novel approaches?
   2. Please describe any innovative approaches or tools, if any, the RB has adopted to ensure that inspectors focus on the safety significant aspects during the oversight activities and that their judgements are consistent and targeted.
   3. Please describe if the RB have an innovative or modern approach to communicating the findings to the licensee following the oversight activities? E.g., post inspection feedback, surveys etc.
   4. Please describe what role modern technology/innovation play in the execution of your regulatory oversight programmes (e.g., inspection findings, ratings, reporting etc.). Please provide any relevant examples that have been implemented or planned by your RB?
4. **Oversight programme for Small Modular Reactors (SMRs)/ Advanced Modular Reactors (AMRs)**

**Purpose:** Aim of this section is to understand regulatory approaches for the oversight of SMRs and AMRs This will help in compiling the associated regulatory challenges and good practices. Aim is to develop and share guidance on the best practices in regulatory oversight of SMRs and AMRs.

Is your country considering to use SMR/AMR technology implementation within the next 10-15 years?

YES/NO (If the answer is ‘No’, you do not need to complete this section).

1. If Yes, please state what those technologies are at a very high level (e.g. High Temperature Gas Reactor, SMR, etc.).
2. Please describe the status of the legal and regulatory framework in your country for the regulatory oversight of SMRs/AMRs. Do you anticipate any significant changes that will be required? If, so please provide a summary or provide some specific examples.
3. Does your RB have a strategy in place or under development to regulate SMRs/AMRs? Please provide the main areas within your strategy (e.g. training, review regulatory guidance, early engagement with vendors, etc.)
4. Does this strategy/plan identify your strategic approach in delivering an oversight programme reflecting on the specific SMR/AMRs programme for your country? e.g. assessment of designs, providing guidance on regulatory expectations.
5. As the RB, what are the three main challenges associated with the regulation of SMRs/AMRs proposed designs in your country? E.g., type of designs, remote locations, staff capability and capacity, security, and safeguards considerations etc. Please provide a short narrative on how your organisation is planning to/ or have addressed those challenges.
6. Please state the readiness of your RB to regulate SMRs/AMRs and the steps taken to ensure this, e.g. How familiar are your inspectors with the technology and designs likely to be adopted in your country?
7. Does the RB have provision for training/familiarisation and early engagement with Vendors, IAEA or other RBs? If not, how does the RB plan to develop staff knowledge and capability?
8. Does your RB have any plans for reviewing regulatory guidance/procedures to ensure their applicability to SMRs/AMRs designs? If your RB has already done that, please state the guidance/process and if those are publicly available.
9. Has your RB considered/ is considering any innovative approaches including the use of modern technology to devise and implement suitable and practical oversight programme for SMRs/AMRs? If so, please describe.
10. Does your country have any SMR/AMRs research reactors or test reactors, SMR/AMRs under construction or going through the licensing process? Please share the areas of learning from the RB oversight perspective.
11. **Any other relevant information**

5.1 Is there any additional, relevant information that you would like to share regarding innovative approaches to regulatory oversight?