Nuclear Safety Standards Committee
47th Meeting, 25 – 27 June, 2019

Agenda item 1.11 b

IAEA-TECDOC-1867
Handbook for Regulatory Inspectors of Nuclear Power Plants

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Regulatory Activities Section
Division of Nuclear Installation Safety
Developed with the following in mind…
“What do I know about inspection now that I wish I knew as a new inspector?”
<table>
<thead>
<tr>
<th>Training</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Comments</th>
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<tbody>
<tr>
<td><strong>Legal and Regulatory Framework</strong></td>
<td>Self-study on legal and regulatory framework</td>
<td></td>
<td><strong>Confirmed during oral board</strong></td>
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<tr>
<td><strong>Technical Competence</strong></td>
<td>Power plant engineering and reactor concepts (as necessary based on individual’s background)</td>
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<td><strong>Confirmed through testing</strong></td>
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<td><strong>Reactor technology training</strong></td>
<td>Reactor technology training (including simulator)</td>
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<td><strong>On-the-job training (on-site inspection activities)</strong></td>
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<td><strong>Specialized technical training as necessary</strong></td>
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<td>• Plant construction</td>
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<td>• Equipment (EDGs, MOVs, etc.)</td>
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<td><strong>Regulatory Competence</strong></td>
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<td><strong>Confirmed during oral board</strong></td>
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<td><strong>Inspector training</strong></td>
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<tr>
<td>• Inspection programme requirements and procedures</td>
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<td>• Inspection techniques using a graded approach</td>
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<td>• Interviewing techniques</td>
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<td>• Inspection report writing</td>
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<td>• Determining the significance of inspection findings and implementation of appropriate enforcement actions</td>
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<td><strong>On-the-job training (on-site inspection activities)</strong></td>
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<td><strong>Personal and Behavioural Competence</strong></td>
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<td><strong>Interpersonal skills</strong></td>
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<td>• Analytical thinking and problem solving</td>
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<td>• Communication and listening</td>
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<td>• Safety Culture</td>
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<td>• Interacting with the media and public</td>
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<td><strong>Leadership and management</strong></td>
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Content and Use

- Developed to support newer inspectors and mentor the next generation of inspectors.
- Provides very practical guidance on how to plan, prepare and conduct regulatory inspections.
- Outlines how to use a graded approach to select systems, structures and components for conducting inspections at nuclear power plants.
- Covers methods to plan and perform inspection activities on safety-related systems, structures and components.
- Evaluate the safety significance of inspection findings and document the results.
Content and Use

• While the publication focuses on the inspection of operating NPPs, it can be applied to facilities under construction, pre-operational testing and decommissioning.

• Also covers general techniques that may be applied to other types of nuclear facilities.
  – Planning, interviewing, report writing, communications, inspector objectivity, etc.

• Used to as a ‘textbook’ to support IAEA hands-on inspector training and other inspection workshops.
Outline

1. Introduction
2. General Guidance for Inspectors
   - Applicable IAEA safety standards
   - Purpose and goals of inspections
3. Regulatory Inspection Process
   - Planning
   - Performing
   - Evaluating
   - Reporting
   - Inspector conduct and objectivity
4. Performing Inspections
   - What to do in the plant
5. Specific Inspection Considerations
   - Suggestions for inspecting specific areas
Annex – Inspector Guidance
   - Covers equipment inspections (e.g., pumps, valves, instrumentation, etc.)
   - A series of suggested questions the inspector should ask themselves as they walkthrough and inspect safety related components
Examples of areas covered

- Observing maintenance and surveillance activities
- Preparing for and conducting plant inspections and walkdowns
- Inspecting for evidence of:
  - Water hammer
  - Equipment preconditioning
  - Fitness-for-duty
  - etc.
- Tools of the trade
  - Containment closeout inspections
- Tips for inspecting:
  - Freeze seals
  - Welding operations
  - Lifting heavy loads
  - EDGs
  - etc.
- Inspection of control room activities
- Interviewing techniques and good practices
- Tips for inspecting:
  - Conducting entrance and exit meetings
- Inspecting for evidence of:
  - Water hammer
  - Equipment preconditioning
  - Fitness-for-duty
  - etc.
- Inspecting for fire protection
- Evaluating the safety significance or inspection observations and findings
- Inspector conduct and objectivity
- Applying a graded approach to inspection
Very Positive Feedback on the Handbook

• TECDOC-1867 received the 2\textsuperscript{nd} most ‘hits’ on the IAEA website since being issued in April 2019
• It has received very positive feedback from the OECD/NEA Working Group on Inspection Practices
• It has been ‘tested’ and extensively used during the IAEA Hands-on Inspector training
• It has received over 160 likes and 60 shares on Facebook; and 120 likes on LinkedIn

\textbf{TECDOC-1867 has been extremely well received and used!}
Thank you for your attention to detail!

Questions?