40th Meeting of the Radiation Safety Standards Committee

23 June 2016

Agenda Item R6.2
Draft Implementing Guide:
Preventive Measures for Material Out of Regulatory Control

Thierry Pelletier
MORC/NSNS
Outline

• History of NST.011

• Objective and scope (Document Preparation Profile)

• Comments from NSGC 5

• Document Overview
Experts involved in the Document Preparation

• 5 Consultancy meetings
  – 11 Experts from 7 States:
    • India, France, Greece, Mexico, Russian Federation, United Kingdom, United States of America
  – 1 Technical Meeting with 28 participants from 23 States

• 1 NSGC previous review during NSGC 5

More than 50 experts participated in this document preparation.
NSGC 9

- 13 preliminary comments were expressed by Finland, France and Russian Federation representatives.
- All of them have been accepted and the text was amended accordingly.
- Additionally some goods comments were provided by Irish member of EPReSC and have been incorporated.
Recommendations for MORC

Nuclear Security Regime for MORC - Objectives are achieved through:

• Legislative and regulatory framework
• Sufficient and sustained resources to competent authorities
• **Preventive Measures**
• Detection Measures
• Response measures for nuclear security event

• Deterrence
• Information Security
• Trustworthiness of Personnel
Objective and Scope: DPP
August 2011

• “…to provide guidance on the development of national strategy and establishment of proper infrastructure and capabilities for preventive measures to deter criminal or unauthorized acts with nuclear security implications involving nuclear and other radioactive material out of regulatory control.”

• “…focus on the preventive measures including deterrence measures, information security, public awareness and trustworthiness of personnel involved in nuclear security”
1. Introduction
2. Basic Elements for Preventive Measures
3. Deterrence Measures
4. Information Security
5. Promotion of Nuclear Security Culture
6. Addressing the Insider Threat
7. International Cooperation and Assistance
   • References
   • Glossary
NSGC-5 Comments

• Delete section on “Physical Protection Measures”
  – Although the *systems and measures* for physical protection or accounting and control of nuclear and other radioactive material is out of the scope of this document, a section on physical protection and NMAC is included because it provides a deterrent value and therefore is considered an important preventive measure for nuclear and other radioactive MORC.

• Keep terminology consistent within NSS documents / Substitute nuclear security systems and measures for nuclear security detection architecture
  – The current term is widely used in NSS-21. Footnote 1 provides the link to the defined terms.
NSGC-5 Comments (cont.)

• Exclude glossary section

• Add more detail on preventive measures for MORC before submitting draft to Member States (x2)
  – Propose to submit to Member States for review while both the Secretariat and Member States provide information and details on preventive measures for MORC.
Summary of NSGC5 Feedback

• Confusion on the scope of the document
  – Inconsistent title, scope, and content
  – Confusion on the scope of the guidance on preventive measures for nuclear security events with MORC with the preventive measures for minimizing MORC.
Nuclear Security for MORC
Prevention, Detection and Response Measures

Material Origin

Material Transport

Material Use

Material Disposal

Material Loss or Theft

Preventive Measures

Detection Measures

Response Measures

Material Under Regulatory Control

Material Out of Regulatory Control

Nuclear Security Event
What is a ‘Preventive Measure’?

• Undefined in NSS-15 and in current draft but . In NSS15, the term “Preventive Measure for Nuclear and other Radioactive Material” is understood as all other “complementary” measures to ”Legislative Provisions”, “Detection” and “Response” for material out of regulatory control (NSS15: § 2.1).

• From NSS-8 Preventive and Protective Measures against Insider Threats
  – The term ‘preventive measures’ is used to describe measures to preclude or remove possible insiders, or to minimise threat opportunities, or to deter or prevent a malicious act from being carried out.
  – The term ‘protective measures’ is used to describe measures to deter, detect, delay, and respond to malicious acts that are carried out; and to mitigate or minimise their consequences.

Preventive Measures focus on influencing an adversary’s decision making for committing a criminal or intentional unauthorized act with MORC
Within the context of this Implementing Guide, the term “preventive measures” refers to measures that aim to prevent a criminal or intentional unauthorized acts by either affecting adversary decision making (i.e., deterrence measures) or by complementary measures to detection of and response to acts involving MORC (i.e., information security, promotion of nuclear security culture, and addressing the insider threat) to reduce the possibility of such acts to be committed.

It is understood that nuclear security systems and measures as described in recommendations NSS 13 [2] and NSS14 [3] contribute to protect nuclear and other radioactive material, associated facilities and activities and to prevent the material from becoming out of regulatory control.
Evolution of the Structure

DPP
- Introduction
- Legal Framework
- National Nuclear Security Infrastructure – PDR
- Concept of Deterrence
- Preventive Measures
  - Public Information
  - Protection and management of sensitive information
  - Trustworthiness of personnel
  - Awareness among competent authorities
  - Role of criminalization
- International Cooperation and Assistance

Actual Document
- Introduction
- General consideration for Preventives Measures
  - Basis for establishing preventives measures
  - Preventive effect of detection and response measures
- Deterrence Measures
  - Deterrence by punishment
  - Deterrence by denial
  - Public information for improving deterrence effects
- Information Security
- Promotion of Nuclear Security Culture
- Addressing the Insider Threat
- International Cooperation and Assistance
1. Introduction
2. General Considerations For Preventive Measures
3. Deterrence Measures
4. Information Security
5. Promotion of Nuclear Security Culture
6. Addressing the Insider Threat
7. International Cooperation and Assistance

References
Implementing Guide on Preventive Measures for Nuclear and other Radioactive Material out of Regulatory Control - Table of Contents

1. Introduction
2. General Considerations For Preventive Measures
3. Deterrence Measures
4. Information Security
5. Promotion of Nuclear Security
6. Addressing the Insider Threat
7. International Cooperation and Assistance
   • References
   • Glossary
Implementing Guide on Preventive Measures for Nuclear and other Radioactive Material out of Regulatory Control - Table of Contents

1. Introduction
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4. Information Security
5. Promotion of Nuclear Security
6. Addressing the Insider Threat
7. International Cooperation and Assistance
   • Basis for establishing Preventive Measures.
     ✓ Legal and regulatory Framework
     ✓ Competent Authorities and Coordination Mechanism
     ✓ Threat assessment and risk informed Approach
     • Preventive effect of Detection and Response Measures.
   • References
Detection and Response Measures

The detection measures can contribute to preventing a criminal or intentional unauthorized act with nuclear security implications involving MORC by detecting material that is out of regulatory control before it can be used for such an act.

The detection and response measures can also contribute to the same objective by deterring adversaries from attempting such an act and reducing the likelihood of such an act being carried out successfully.
Implementing Guide on Preventive Measures for Nuclear and other Radioactive Material out of Regulatory Control - **Table of Contents**

1. Introduction
2. **General Considerations For Preventive Measures**
3. **Deterrence Measures**
4. Information Security
5. Promotion of Nuclear Security Culture
6. Addressing the Insider Threat
7. International Cooperation
   - References

- Deterrence by Punishment
- Deterrence by Denial
- Public Information for improving deterrence effects
Deterrence Measures

• (1) those relying on communicating that there is a significant threat of punishment for attempting criminal or intentional unauthorized acts

• (2) those relying on communicating that the success of such acts is prohibitively difficult or unlikely.

• These two types of deterrence are referred to, respectively, as “deterrence by punishment” and “deterrence by denial.” Both types can be useful and complementary.
Public Information on Deterrence Measures

• The messages should communicate to the adversary that the likelihood of failure (deterrence by denial) or of being detected, identified, punished, or injured in the course of handling such material (deterrence by punishment) outweighs the perceived benefits of their actions.
Implementing Guide on Preventive Measures for Nuclear and other Radioactive Material out of Regulatory Control - Table of Contents

1. Introduction
2. General Considerations For Preventive Measures
3. Deterrence Measures
4. Information Security
5. Promotion of Nuclear Security Culture
6. Addressing the Insider Threat
7. International Cooperation and Assistance
   • References
Information Security

• Sensitive information therefore includes information on nuclear security systems and measures for prevention of, detection of, and response to criminal or intentional unauthorized acts with nuclear security implications involving MORC, or that may otherwise assist in carrying out such acts.
Implementing Guide on Preventive Measures for Nuclear and other Radioactive Material out of Regulatory Control - Table of Contents

1. Introduction
2. General Considerations For Preventive Measures
3. Deterrence Measures
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5. Promotion of Nuclear Security Culture
6. Addressing the Insider Threat
7. International Cooperation and Assistance
   • References
Nuclear Security Culture

- Nuclear security culture plays a key role in ensuring that individuals, organizations and institutions remain vigilant and that sustained measures are taken to counter threats.
1. Introduction
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3. Deterrence Measures
4. Information Security
5. Promotion of Nuclear Security Culture
6. Addressing the Insider Threat
7. International Cooperation and Assistance
   • References
Insider Threat

- This process should confirm the trustworthiness of personnel with access or authority or knowledge and involved in detection and response measures, to the appropriate levels for their roles, thereby reducing the risk of authorized personnel engaging in illegal activities and becoming insider threats.
Implementing Guide on Preventive Measures for Nuclear and other Radioactive Material out of Regulatory Control - Table of Contents

1. Introduction
2. General Considerations For Preventive Measures
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4. Information Security
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   • References
International Cooperation and Assistance

• As in many other areas (drugs, arms or human trafficking, financial manipulation, etc.) adversaries may seek to shield themselves and evidence of their activities from detection by dividing them between different jurisdictions.

• If effective arrangements for mutual cooperation among States in addressing transboundary offences is lacking, adversaries may attempt to immunize themselves and their organizations from detection and prosecution by dispersing or concealing the proceeds of their illicit activities beyond the national territory in which the offence was committed. Therefore, international cooperation with respect to offences involving MORC can enhance deterrence measures.
Summary

• Document was updated accordingly to NSGC 5 comments with attention to remove any of out of scope content.
• Opportunity for experts to clarify Preventives measures for MORC.
• More consistency and complementarity with Nuclear Security Series.
• Last CM conclude that document was ready for NSGC approval for 120 days review by Member states.
Thank you!
• Backup slides
# Comments from Finland representative

<table>
<thead>
<tr>
<th>Comment No.</th>
<th>Para/Line No.</th>
<th>Proposed new text</th>
<th>Reason</th>
<th>Accepted</th>
<th>Accepted, but modified as follows</th>
<th>Rejected</th>
<th>Reason for modification/rejection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3.3</td>
<td>Consider adding text on a third category: “The front-end preventive measures include measures for anti-radicalization, de-radicalization, and anti-social exclusion, which involve the coordination and cooperation of many authorities.” or text to that effect.</td>
<td>These are fundamental measures.</td>
<td>Accepted</td>
<td>Text revised</td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td>4</td>
<td>“…confidentiality, integrity and availability…”</td>
<td>All three areas of information security – good! Pointers to measures in 4.3 also good.</td>
<td>Accepted</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>6.2</td>
<td>Add “An insider may act as a result of blackmail/coercion.” or text to similar effect. Consider mentioning also the unwitting insider.</td>
<td>For completeness and awareness raising.</td>
<td>Accepted</td>
<td>Text revised</td>
<td></td>
<td></td>
</tr>
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<td>4</td>
<td>6.7</td>
<td>Add “Staff should be aware and trained with regard to the insider risk connected to themselves and to others and with regard to the measures for managing the risk.”</td>
<td>To ensure awareness of the possibility of coercion (self and family as a potential target) and to enable early detection (behavioural observation).</td>
<td>Accepted</td>
<td>Incorporated into § 6.5</td>
<td></td>
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<td>Comment No.</td>
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<td>Accepted</td>
<td>Accepted, but modified as follows</td>
<td>Rejected</td>
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<tr>
<td>1</td>
<td>Reference(s)</td>
<td>There are overlaps in the references and some references to NST documents are not sustainable.</td>
<td>Accepted</td>
<td>References revised. For NST documents, it will be checked whether the referred NST documents are published.</td>
<td></td>
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<tr>
<td>2</td>
<td>p.3 § 2.2</td>
<td>Add in the first bullet: “...covering the prevention of, detection of and response to...”</td>
<td>Accepted</td>
<td>Text revised</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>p.4 § 2.2</td>
<td>Delete “unlawful” or write “…unlawful or intentional unauthorized acts...”</td>
<td>Accepted</td>
<td>Text revised</td>
<td></td>
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<tr>
<td>4</td>
<td>p.15 § 4.5</td>
<td>Add in the first bullet: “…and information from all reliable sources to support...”</td>
<td>Accepted</td>
<td>Text revised</td>
<td></td>
<td></td>
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<tr>
<td>5</td>
<td>p.15 § 4.5</td>
<td>There is need to explain the missions of the centres mentioned in the last bullet.</td>
<td>Accepted</td>
<td>The centres are introduced in NSS 21, §3.14.</td>
<td></td>
<td></td>
<td></td>
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# Comments from Russian Federation representative

**Reviewer:**
Country/Organization: Russian Federation/State Corporation Rosatom  
Date: 20.05.2016

<table>
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<tr>
<th>Comment No.</th>
<th>Para/Line No.</th>
<th>Proposed new text</th>
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<tbody>
<tr>
<td>1</td>
<td>Page 2, Line 27</td>
<td>Make reference to all documents from the reference list [2,3,5,6,8,13,14]</td>
<td>It is specified that guiding documents for materials under regulatory control presented in other NSS publications but reference is made to only one publication from the reference list – [2]</td>
<td>Accepted</td>
<td>References incorporated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Page 4, Line 13</td>
<td>Delete the first sentence or copy paragraph from reference [1]: A nuclear security regime includes measures for: (a) Defining as offences or violations under domestic laws or regulations those criminal or intentional unauthorized acts involving or directed at nuclear material, other radioactive material, associated facilities or associated activities; (b) Appropriately dealing with other acts determined by the State to have an adverse impact on nuclear security; (c) Establishing appropriate penalties that are proportionate to the gravity of the harm that could be caused by commission of the offences or violations; (d) Establishing the jurisdiction of the State over such offences or violations; (e) Providing for the prosecution or, as appropriate, extradition of alleged offenders.</td>
<td>The first sentence “An essential element of a State’s nuclear security regime is measures for defining as offences or violations under domestic laws or regulations those criminal or intentional unauthorized acts involving or directed at nuclear material, associated facilities or associated activities” is not structured as needed.</td>
<td>Accepted</td>
<td>Text revised.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Page 11, Line 19</td>
<td>Delete one of two references [4]</td>
<td>Reference [4] is made twice.</td>
<td>Accepted</td>
<td></td>
<td></td>
<td>Repetition deleted</td>
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<tr>
<td>4</td>
<td>Pages 22-23</td>
<td>Restore correct numbering of references</td>
<td>After number 12 numbering is erroneously continued from number 6 instead of number 13</td>
<td>Accepted</td>
<td></td>
<td></td>
<td>Numbering was corrected.</td>
</tr>
</tbody>
</table>
Nuclear Security Systems and Measures

- **Dissuasion**
  - Measures taken to convince adversaries that the *development* of capabilities and strategies will be ineffective, too costly, or unattainable

- **Deterrence**
  - ‘Deterrence by threat of punishment’ or ‘classical deterrence’
    - To deter crime, the severity of punishment must outweigh the benefit (Severity / Proportionality)
  - ‘Deterrence by denial’
    - Deterring an action by having the adversary see a credible capability to prevent him from achieving potential gains adequate to motivate the action
    - Actions taken to increase the adversary’s perception of the anticipated costs and/or decrease its perception of the likely benefits from committing their action.