

WINS Workshop on Understanding and mitigating the insider threat
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Insider Threat – from a Regulator Perspective



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Outline

Definitions & Insider Threats around the World

The Risks

The Regulatory Approach

The Protection Strategy

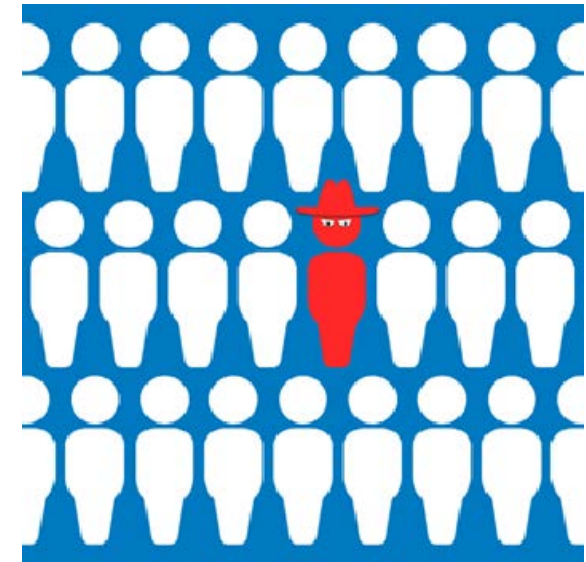
Regulatory oversight and Inspection Program



Definition

From INFCIRC/225/Rev. 5 and FANR-REG-08 Version 1 for Physical Protection of Nuclear Material and Nuclear Facilities

“Insider - One or more individuals with authorized access to Nuclear Facilities or nuclear material in transport who could attempt Unauthorized Removal of nuclear material or Radiological Sabotage, or who could aid an external adversary to do so”



Definition

A Physical Protection System is established against threats both by outsiders and insiders.

Insiders could:

- Take advantage of their access rights to the nuclear material or nuclear facility;
- Make usage of their authority; and knowledge
- Bypass dedicated physical protection element or other provision such as safety procedure



Insider Threats around the world



Oleg Savchuk
February 1992

Placing a virus into the computer control system at Ignalina NPP “Lithuania”.



Doel NPP (Belgium) Turbine Damage
2014

Someone deliberately opened an emergency drain valve:

- 65000 liters of Oil leak out.
- 150 million Euro in lost revenue

Insider Threat – The Risks

For Theft:

Repeated unauthorized removal of small quantities of nuclear material during several events

Unauthorized removal of a large quantity of nuclear material during a single event



For Sabotage

the Vulnerability Assessment – review the effectiveness of the PPP against the DBT



The Risks



The Vulnerability Assessment for Nuclear Power Plant of Category III Nuclear Material shall built scenario of sabotage based on the DBT.



The insider could:

- Have the knowledge of the safety/operation of the NPP and/or about physical protection
- Be passive (only providing information about the NPP or the physical protection) or active (providing information and performing actions) perpetrator
- Have access to some or all areas of a NPP and use equipment or tools

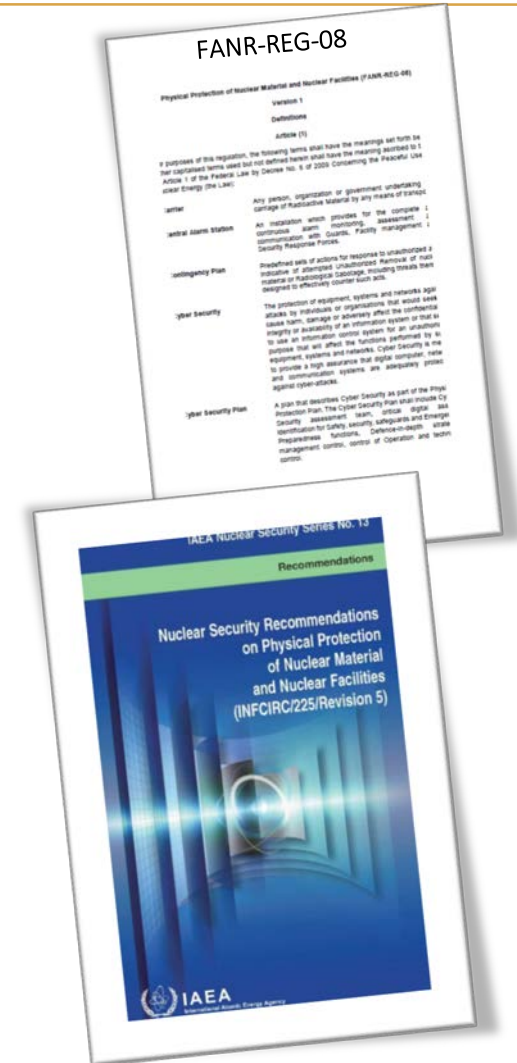
Insider Threat – The Regulatory Approach

Regulation for Physical Protection of Nuclear Material and Nuclear Facilities - FANR-REG-08

Design Basis Threat (DBT) Definition from FANR-REG-08.

*“The attributes and characteristics of **potential insider** and/ or external adversaries, who might attempt Unauthorized Removal of nuclear material or Radiological Sabotage, against which a Physical Protection System is designed and evaluated.”*

Same definition as in the INFCIRC/225/Rev. 5



Insider Threat – The Regulatory Approach (1/3)

Protection against the Potential for Insider Threats Article (16)

The Licensee shall establish, maintain and implement an *insider mitigation programme* and shall describe the programme *in the Physical Protection Plan*.



Insider Threat – The Regulatory Approach (2/3)

Protection against the Potential for Insider Threats Article (16)

The *insider mitigation programme* shall monitor the initial and continuing *trustworthiness and reliability of individuals* granted or retaining unescorted access authorisation to a Protected Area or Vital Area, and implement *defence-in-depth methodologies* to minimise the potential for an insider to adversely affect either directly or indirectly the Licensee's capability to prevent Radiological Sabotage.



Insider Threat – The Regulatory Approach (3/3)

Protection against the Potential for Insider Threats Article (16)

The insider mitigation programme shall include the following elements:

- an access authorisation programme;
- a fitness-for-duty programme; and
- the Cyber Security Plan



The Protection Strategy

The licensee shall describe in its PPP, the insider mitigation programme, which shall include:

Unescorted Access Authorization (UAA) Program

Behavior Observation Program (BOP) & Fitness for Duty (FFD)

Defence-in-Depth methodology

Cyber Security Program



The Protection Strategy

Unescorted Access Authorization (UAA) Program for Barakah NPP



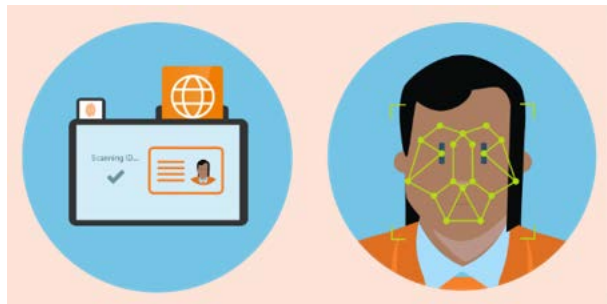
Set in place for Operation of Unit 1 of Barakah NPP:

- Pre-employment procedure (e.g. recruitment and vetting)
- At regular interval, during employment process (e.g. behavior observation program)
- Post-employment measures

Insider Threat – The Protection Strategy

Unescorted Access Authorization (UAA) Program for Barakah NPP

- to evaluate the trustworthiness and reliability of personnel granted unescorted access into security areas that support Unit 1 Operations



True Identity Verification



Background investigation through
CICPA Land Permit



Successful completion of training and
approval of an access request form



Insider Threat – The Protection Strategy

Behavior Observation Program (BOP) & Fitness for Duty (FDD)
for Barakah NPP

The Objective:

- Detect behaviors or activities detrimental to the safety
- Detect impairment from any cause that if left unattended may result in a risk to public health and safety

The BOP and FFD programs, including random drug and alcohol testing and tests

Insider Threat – The Protection Strategy

Defence-in-Depth methodology for Barakah NPP

HOW?

The Objective:

To prevent insider adversary(ies) to attempt to theft of nuclear material or sabotage of target set.



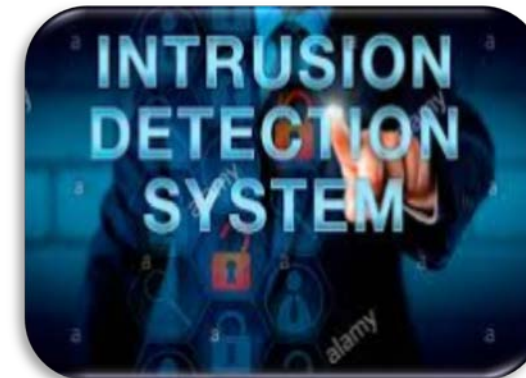
Physical Barriers with Access Control



Response to Nuclear Security Events



Two men-rule to access Vital Areas



IDS against Cyber Threat

Insider Threat – The Protection Strategy

Cyber Security Program for Barakah NPP

The Objective:

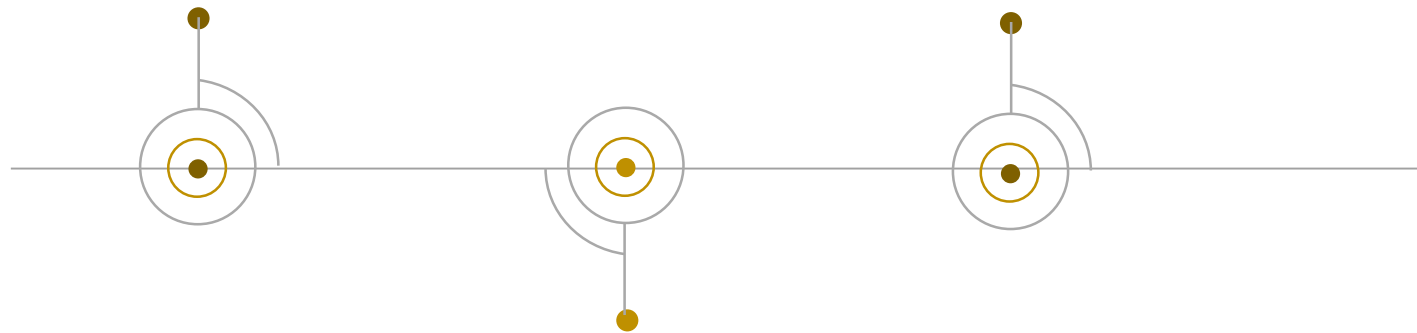
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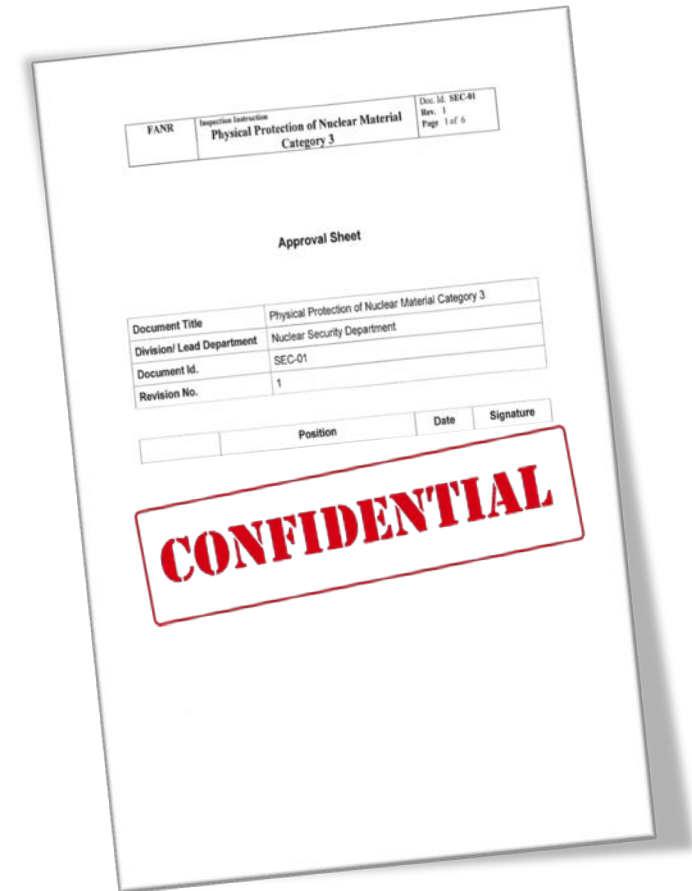
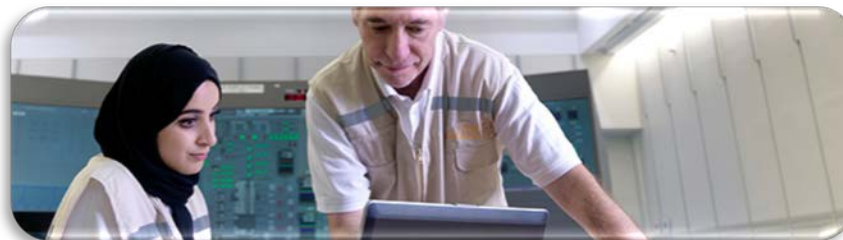
FANR Regulatory Oversight and Inspection Program

Review the Physical Protection Plans (PPP) subject to approval for licence to operate Barakah NPP.

The conduct of Security Exercises as part of the Operating Licence.



Inspections on regular basis to assess and verify the compliance on the implementation of UAA and BOP under the PPP.



Thank you

