

United States Department of Energy National Nuclear Security Administration International Nuclear Security

**M1: Workshop Overview and Introduction** 

Research Reactor Sabotage Protection Workshop



SAND2025-02023O

#### Introductions



- Instructors
- Trainees
  - Name and Organization
  - Job Responsibilities
  - Experience in the area of physical protection and research reactors
  - Expectations for this workshop



## **Workshop Goal and Objectives**

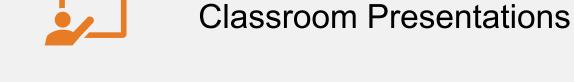


Goal: Understand the concepts related to the protection of research reactors from radiological sabotage and develop the skills required to analyze the associated physical protection system (PPS) requirements Objectives:

- Become familiar with the concepts of Unacceptable Radiological Consequences (URC) sabotage and protection target identification
- Understand approaches to designing and implementing a PPS at a research reactor facility, including the development of a protective strategy
- Develop skills required to analyze and evaluate a research reactor PPS at a concept level
- Understand the concept of integrated response



# Workshop Format





### **Group Discussions**



**Practical Exercises** 



## Course Agenda (1)

Day 1: Research reactor targets and security recommendations		
1000-1030	M1: Introductions and Workshop Overview	
1030-1045	Break	
1045 - 1130	M2: IAEA nuclear security guidance for research reactors The module will discuss IAEA nuclear security recommendations as they apply to research reactors.	
1130 – 1230	M3: Radiological sabotage protection targets at research reactors Module 3 will discuss the concept of and international practices for URC/HRC criteria as they apply to research reactors. Using examples of common research reactor safety scenarios, the module will discuss approaches to identifying MTR sabotage protection targets.	
1230-1330	Lunch	
1330-1430	M4: Hypothetical research reactor facility familiarization, The discussion will familiarize the participants with a hypothetical research reactor facility, which will be used in practical exercises.	
14301445	Break	
1445-1545	<b>Facilitated discussion: Hypothetical facility assumptions</b> The discussion will seek to develop a set of assumptions about the hypothetical facility including the site layout, protection targets, designation of security areas, relevant PPS elements, response capabilities and DBT. The goal of the discussion is to align the hypothetical facility with the partner- country situation and context. The discussion will consider both external and insider threats.	
1545-1615	Closeout discussion	

0945 – 1000	Review of Day 1
1000-1045	M5A: PPS for research reactors – design fundamentals Module 5A will discuss the PPS design fundamentals and the security area considerations for research reactor facilities. The module
1045 - 1100	Break
1100 - 1130	M5B: PPS for research reactors - detection Module 5B will discuss PPS technologies as they apply to research reactors and with a focus on the partner-country facility. The module will focus on the technologies and operational considerations for IDS (exterior and interior), assessment and surveillance systems, alarm stations, and access control.
1200-1230	M5C: PPS for research reactors – delay Module 5C will discuss technology considerations and international good practices for delay.
1230 - 1330	Lunch
1330-1415	MP5D: Response and protective strategy Module 5D will discuss different types of protective strategies, considerations of on-site and off-site response, response infrastructure, and the use of time-motion studies.
1330-1500	Exercise 1: PPS design concepts (begin) The participants will be divided into two groups. Group D will be assigned conceptual PPS design tasks for detection and delay at a) limited access area b) protected area, and c) vital areas and strong rooms. The team will consider the aspects of delay (vehicle and personnel barriers), detection (including assessment), surveillance, and alarm station operations. Group R will formulate a protective strategy based on a mixed on-site and off-site response. The exercise will use the hypothetical research reactor facility discussed during Day 1.
1500 - 1515	Break
1515 – 1600	<b>Exercise 1: PPS design concepts (finish)</b> The groups will present their designs. A facilitated discussion will be conducted regarding the integration of the PPS elements.
1600 - 1630	Close Out Discussion





## Course Agenda (2)

Day 3: Research reactor Protective Strategy	
0945 - 1000	Review of Day 2
1000-1100	Module 6: Table-top exercises (TTX) as a tool for PPS analysis
	The module will present a simplified methodology for conducting tactical- level TTX exercises. Instructors will conduct a TTX demonstration.
1100 - 1115	Break
1115 - 1200	Exercise 2: TTX scenario development (begin)
	Based on the results of Exercises 1, the participants will develop exercise scenarios for specific targets and cardinal directions.
1200 - 1300	Lunch
1300 - 1345	Exercise 2: TTX scenario development (finish)
	The groups will complete their work.
1345 - 1400	Break
1400-1530	Exercise 3: TTX exercises
	The participants will conduct TTX exercises using Exercise 2 scenarios. The
	class will participate in a facilitated discussion of exercise results.
1530 - 1615	Close Out Discussion

0945 - 1000	Review of Day 3
1000-1100	Module 7: Coordination of security response and emergency response Module 7 will discuss the fundamentals of emergency response at a research reactor and the coordination of emergency response and security response.
1100 - 1115	Break
1115 - 1200	Facilitated discussion: Integrated <u>response</u> The instructors will discuss an integrated response scenario.
1200 - 1300	Close out discussion and recap of key outcomes
1300	Workshop completion and <u>adjourn</u>





### **Questions, Comments, Concerns?**