

Development of Interactive Tabletop Exercise on National Nuclear Forensics Training Program

M H E S I

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Introduction

Office of Atoms for Peace (OAP) was designated to build up nuclear forensics capabilities since 2013. The national training program is a key element to support the radiological crime scene management and security network development. Subsequently, the interactive exercise began to conduct in 2017 and 2018 with the competent authorities. The consequence of the curriculum can provide a national standard operating procedure (SOP). Three interactive exercises accomplished in several circumstances, along with the demonstration of the fictitious scenario and database so that the participants can understand the role and the insight knowledge to establish the SOP. The entitled of the exercises is a metal box, a dead body, and a briefcase.

Scenario I : Metal box

A metal box intends the networks can understand radiological crime scene management for determination of the origin.

- ❖ A woman founded a metal box, locating on the ground floor of an apartment.
- ❖ The box showed a symbol similar to a radioactive sign.
- ❖ Consequently, she notified the police to handle it.
- ❖ The police cooperated with the radiation safety organization for investigation.
- ❖ The radiation level around the box was estimated using a radiation detector, and shown the dose rate of 10 mSv/h.
- ❖ After that, the mobile expert support team (MEST) rechecked the radiation level and radionuclide.
- ❖ The metal box was an Ir-192 with a dose rate of 20 mSv/h.
- ❖ It was a Gamma-ray projector utilized in industrial radiography to detect defects in materials.

What is the first step the police officer should do?

What is the serial number of the metal box?

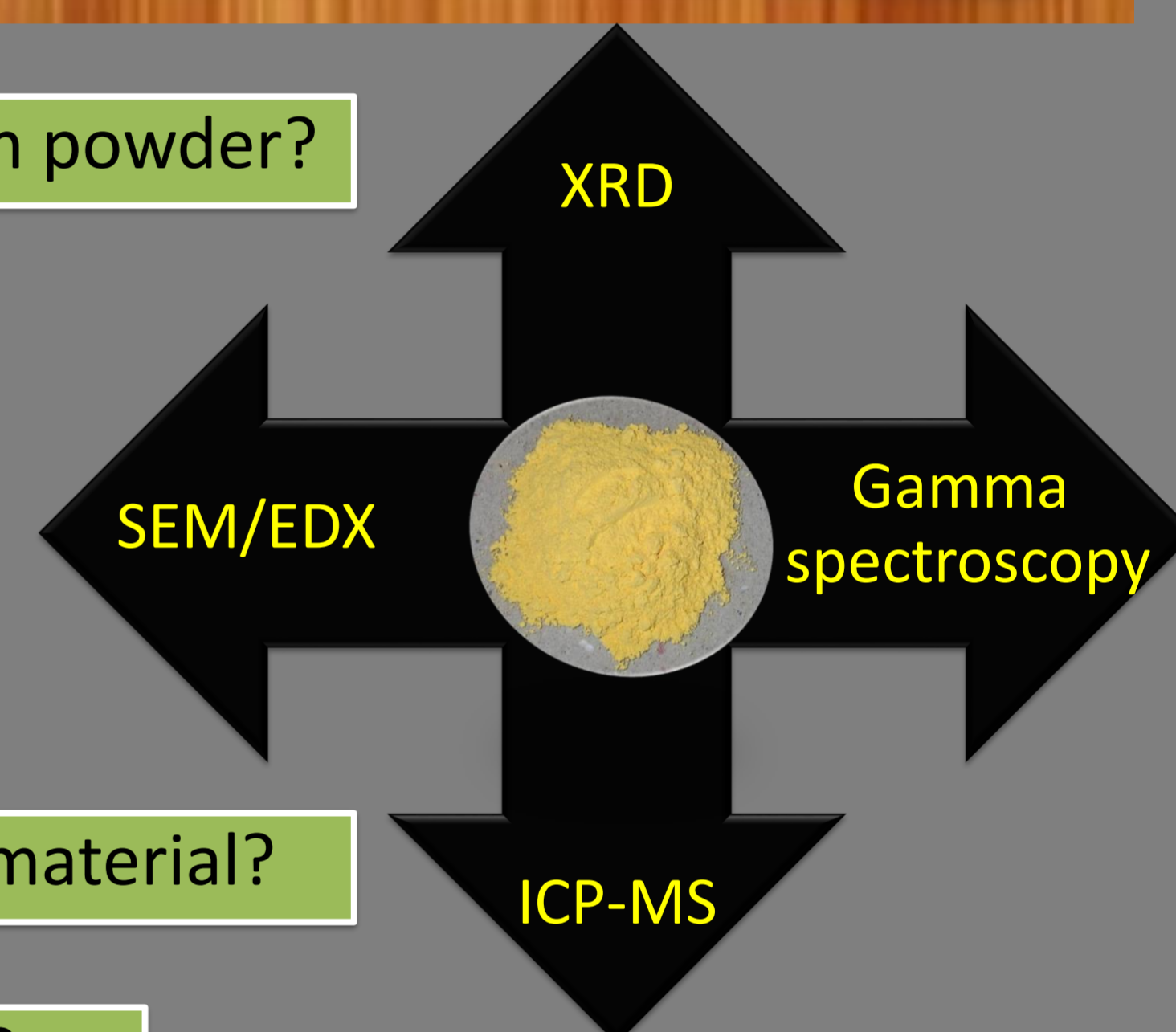
Is the metal box registered in the national library?

Scenario II : Briefcase

A briefcase purposes the participants can identify the seized material by interpretation of signatures analysis.

- ❖ The police officers inspected the suspect that found a radiation symbol in the garbage. After that, they communicated with explosive ordinance disposal (EOD) for examination at the crime scene.
- ❖ The EOD performed the investigation and confirmed the briefcase did not contain an improvised explosive device.
- ❖ Subsequently, the police cooperated with the MEST to check the radiation level and showed the dose rate of 0.1 mSv/h with uranium nuclides.
- ❖ Afterward, the designated laboratory of nuclear forensics and traditional forensics analyzed the seized follow the chain of custody.
- ❖ The briefcase consisted of yellowish powder in a plastic bag.

What are the radioisotopes of yellowish powder?



How do you discover the origin of this material?

What is the origin of yellowish powder?

Scenario III: Dead body

A dead body aims the competent authorities can learn a murder investigation related to radioactive material.

- ❖ The police officers arrived at the hotel for the investigation of a body at a hotel.
- ❖ They noticed some money with the identity card in the wallet and a piece of paper with a handwritten "MED" inside pocket.
- ❖ Subsequently, the police transferred the body to the forensic pathology for further investigation.



How do the police identify the suspects?

Does the man die from the I-125?

What is the origin of I-125 and I-131?

Who maybe take a risk for radiation exposure?