

PHYSICAL PROTECTION OF SPENT RADIOACTIVE SOURCES

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SYNOPSIS

In an effort to further enhance the physical protection of spent radiological materials stored in the Radiation Waste Storage Building (RWSB), an agreement was signed by ZCCM-Investments Holding through the Ministry of Health (MoH) and Radiation Protection Authority (RPA) with the Office of Radiological Security (ORS) of United States of America (USA) to design a reliable security system. The agreement was signed in the year 2014.

The agreement between ZCCM-IH and ORS was necessitated by the fact that ORS has a mission to protect and reduce access to vulnerable nuclear and radiological materials located at civilian sites worldwide. Through ORS, physical protection controls were upgraded in order to secure spent sources stored at the interim RWSB.

In line with ORS's mission, Zambian institutions tasked to protect these materials have continued to take necessary measures to ensure that high priority spent radiological materials are well protected from theft and sabotage. One such measure was the construction of a new guard room for security personnel who monitor and keep surveillance of the spent sources on a 24 hours daily routine. The introduction of this physical protection has greatly improved the security of spent sources at RWSB. The design of the physical protection system is based on the principle of 'delaying the adversary' through the presence of physical barriers and security locks.

The early warning systems provided by alarms are further applied to deter unauthorised access to the premises. In addition personnel identification devices in form of proximity cards and biometric finger print detectors are used to ensure that only authorised personnel have access to the building.

The Alarm system is arranged in such a way that it has a control panel which codifies signals from detection devices, fixed duress buttons or the system itself and transfers it to a remote central monitoring station.

In addition to the physical barriers and alarm system, surveillance cameras in form of closed circuit television security system (CCTV) with five (5) cameras have been installed. The cameras are positioned in strategic position in order to have a wider view of areas inside and around the premises as follows:

- Outside main entrance area, to view entrance and exit from the RWSB
- Outside back area, covering the entire rear of the RWSB
- Inside RWSB outside grating area looking at the fork lifter and entrance
- Inside RWSB –inside of the grating area left looking at the spent sources
- Inside RWSB –inside of grating area right looking at the spent sources

All security equipment is connected to UPS units to ensure uninterrupted power supply and is also protected against lightning and power surges. There are four (4) UPS units in the RWSB, two (2) on each side of the grating to service the remote panel and the main panel. In addition to this solar panels have also been installed to solve the problem of electricity outages.

The sequence of action is such that, in case of an emergency, the first security element reports the incident to all guard stations to support the site and take control of the situation; however in circumstances where it is impossible to take control of the situation, first responders have to call a local police station and consequently inform the radiation specialist, who will in turn inform RPA accordingly.

Key Words: Spent Sources, Protection and security

State

Zambia

Gender

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Track Classification: PP: Physical protection systems: evaluation and assessment