

## CYBER SECURITY APPROACH FOR NUCLEAR FACILITY; GHANA'S PERSPECTIVE.

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Obed Agbenorku<sup>1</sup>, Simon Adu<sup>1</sup>, Kwame Appiah<sup>1</sup>

1. Nuclear Regulatory Authority

### Abstract

The security of nuclear facilities is an important practice to prevent theft and sabotage of nuclear materials that could result in a radiological release. Traditionally, focus has been on physical threats to facilities such as armed militants gaining access to or damaging a facility. The newer trend for sabotage, theft and gaining access to nuclear facilities is cyber threat. Most operations in nuclear facilities have moved from the use of analog products to the digitization of operational functions and working processes increases in quality and efficiency. The digitalization of data and the extensive use of information management systems carried the world to a new era. The digitalization of infrastructure makes these systems vulnerable to cyber threats. The threat from cyber-attacks is now perceived as a problem of national and international security as cyber-attacks grow in number and the actors behind them are very knowledgeable in the field. Several nuclear facilities were designed without concern for cyber-attacks. This newer threat is presenting new challenges to facility operators as well as national authorities. Stuxnet has proven that even small electronic hardware components and their codes and drivers in the background are important for securing nuclear facilities. However, Stuxnet computer security incident demonstrated that nuclear facilities can be susceptible to cyber-attack. This and other events have significantly raised global concerns over potential vulnerabilities and the possibility of a cyber-attack or a joint cyber-physical attack that could impact nuclear security. The continues use of computers and other digital electronic equipment makes it likely target for cyber-attack that may affect physical protection systems at nuclear facilities, instrumentation, information processing and communications. Ghana's plans on cyber security for its nuclear facilities and the up-coming establishment of nuclear power plant focuses on the following. Unauthorized access to information, Blockage of data transmission lines, Unauthorized intrusion into data communication systems or computers and Interception and change of information, software, hardware. The following concerns are also considered. Computer security which involves the protection of digital data and the defense of systems and networks against malicious acts, industrial control systems, access control systems, tracking and alarm systems, information systems pertaining to security and emergency response and adequate security measures during the introduction of hardware, software and the design stages. Cyber and physical security of facilities are put into categories or security zones to help protect each in a graded approach manner.

### Gender

Male

### State

Ghana

**Primary author:** AGBENORKU, Obed (Nuclear Regulatory Authority)

**Co-authors:** Mr ADU, Simon (Nuclear Regulatory Authority); Mr APPIAH, kwame (nuclear regulatory authority)

**Presenter:** AGBENORKU, Obed (Nuclear Regulatory Authority)

**Track Classification:** CC: Information and computer security considerations for nuclear security