

## INTERACTION BETWEEN NUCLEAR SAFETY SYSTEMS AND SECURITY SYSTEM USING LEU

Nuclear safety and nuclear security of Uranium Fuel Fabrication Facilities have the same ultimate goal to protect individuals, the public, and the environment from harmful effects of ionizing radiation. In uranium fuel fabrication facilities with lowenriched uranium 20% which uses in research reactors, large amounts of radioactive material are present in a dispersible form. This is particularly so in the early stages of the fuel fabrication process. In these facilities, the main hazards are potential criticality and releases of uranium hexafluoride (UF<sub>6</sub>) and U<sub>3</sub>O<sub>8</sub>, from which workers, public and the environment should be protected. Nuclear facilities are vulnerable to terrorist attacks or thefts of nuclear material, especially for fissile materials which can be used for nuclear weapons.

Nuclear Fuel in Research reactors typically use a form of uranium that is more highly enriched (20 %) than that used for power reactors, which may be a more attractive target for theft. For this reasons, safety systems in nuclear fuel fabrication facilities could be used to assist the security, Criticality Accident Alarm Systems (CAAS) are required in nuclear fuel fabrication facilities where an accidental criticality excursion could result from operational processes or insider sabotage. The systems could be integrated for safety and security protection by establishing procedural or automated alarm communications between safety and security disciplines for certain operational or event conditions to prevent the insider threat and mitigate the radiological consequence.

Scenario accident was demonstrated when the insider threat has motivation (political, financial, ideological, or personal) uses his experience and knowledge to do sabotage in nuclear fuel fabrication facilities during wet process intend to cause criticality accident.

### Gender

Male

### State

Egypt

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