

Transition to Integrated Safeguards at Nuclear Fuel Fabrication Plants

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ABSTRACT

This paper presents the improvements in efficiency and effectiveness of the safeguards approach applied at depleted, natural and low enriched uranium (DNLEU) conversion and fuel fabrication plants (FFPs) following a transition from traditional safeguards (TS) to integrated safeguards¹ (IS). The paper will explain the relationship between the Agency drawing a broader conclusion for a State and the implementation of IS, highlight how the transition from TS to IS can be accomplished, and describe a process by which IS can be introduced through a combination of good IAEA-National Authority cooperation and field trials. For demonstration purposes, a comparison of the onsite safeguards activities before and after the introduction of IS at a fuel fabrication plant which manufactures both PWR (Pressurized Water Reactors) fuel assemblies and CANDU fuel bundles will be examined. It is expected that this will provide a good reference baseline on the safeguards improvements made possible by the introduction of IS at fuel fabrication facilities without mixed oxide fuels (MOX). The paper will also show the operational and logistical differences between the TS and IS regimes and highlight some of the advantages to a State for which a broader conclusion has been drawn by the Agency. The paper will offer technical insight to safeguards coverage of nuclear material borrowing scenarios and implementation of other safeguards measures such as the introduction of short notice random inspections (SNRI), use of a secure mailbox system at the FFP, and implementation of random interim inspections (RIIs) at LWRs (Light Water Reactors) and CANDU power reactors.

¹ Term “integrated safeguards” refers to an optimized combination of all safeguards measures available to the Agency under comprehensive safeguards agreements and additional protocols which maximize effectiveness and efficiency within available resources in fulfilling the Agency’s right and obligation.