

## IAEA REQUIREMENTS FOR ACCOUNTING AND CONTROL OF NUCLEAR MATERIAL AT NPP

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Almost all countries use nuclear technologies for various peaceful purposes, including food security and water security, energy production, industrial applications, agriculture and health. Only a few of these activities involve the use of nuclear material, which potentially can be switched to the manufacture of nuclear weapons or other explosive devices. In this regard it is considered appropriate to monitor the use and presence of nuclear material.

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At the international level it is the responsibility of the International Atomic Energy Agency (IAEA) to deal with the non-proliferation problem. With the help of the developed system of measures, called international safeguards, the IAEA monitors the use of nuclear material for peaceful purposes only.

The purpose of IAEA safeguards is "the timely detection of the diversion of significant quantities of nuclear material from peaceful nuclear activities to the manufacture of nuclear weapons or of other nuclear explosive devices or for purposes unknown, and the deterrence of such diversion by the risk of early detection".

The IAEA in their monitoring activities uses the developed system of measures (safeguards) set out in the comprehensive safeguard agreement (INFCIRC/153). For the purpose of ensuring the practical implementation of the safeguards the agreement provides the use of material accountancy as a safeguard of paramount importance, in conjunction with the preservation and surveillance as important complementary measures.

The nuclear material accounting is a set of measures and technical means that allow with sufficient reliability to determine the present amount and the flow of nuclear material. The accounting and control of nuclear materials is carried out at two levels: at the facility level and at the state level.

At a facility operational and reporting documentation is kept. The operational documentation includes the important supporting documentation that helps clarify the content of the reports. The reporting documents are sent to the regulatory authority. After the inspection the regulatory authority sends the reports to the Agency.

In accordance with the requirements three types of reports are sent to the IAEA:

- inventory change report (ICR) (a detailed list of all receipts and shipments of nuclear material);
- material balance report (MBR);
- physical inventory listing (PIL) provided together with a MBR.

The system of accounting and control of nuclear material at the facility is based on the principle of split areas of a facility on a separate balance areas (MBAs), which material balance of nuclear material is carried out. In each MBA there are the places where nuclear material can be measured to determine its flow and present amounts (KMP).

An important challenge for Belarus today is creating a modern system for accounting and control of nuclear materials at the Belarusian nuclear power plant. The creation of such system not only provides a reliable basis for the application of IAEA safeguards, but also allows increasing the accuracy of the data on nuclear material.

### BIBLIOGRAPHY

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