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On-Line Enrichment Monitor (OLEM): Supporting Safeguards at Enrichment Facilities

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The On-Line Enrichment Monitor (OLEM) is a system designed to provide continuous enrichment measurements at gaseous centrifuge enrichment plants. In addition to results of recent research carried out internationally, it incorporates lessons learned from the design, operation, and maintenance of systems such as the Continuous Enrichment Monitor (CEMO) and the Cascade Header Enrichment Monitor (CHEM) to provide an improved system for unattended use. The OLEM system, designed to measure process gas at feed and take-off piping level, allows for more efficient implementation of enrichment monitoring at large scale facilities, and provides a significant contribution to the goal of improving the uranium-235 mass balance. The OLEM design is however flexible and modular enough to be easily adaptable to any piping. OLEM additional contribution is also bringing permanent assurance that the declared features of UF6 handling are operated as declared and in particular are not used for highly enriched uranium (HEU) production. The OLEM design incorporates the latest IAEA methods and approaches for physical and data security, while minimizing the impact on facility operations. The OLEM system provides inspectors with precise measurements to allow effective monitoring of enrichment levels. Recently, a field trial of OLEM prototype systems has been conducted, and the OLEM design and measurement approach, along with feedback from the field trial, will be presented.

Country or International Organization

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Primary author: ELY, James (IAEA)

Co-authors: LEBRUN, Alain (IAEA); SMITH, Eric (Pacific Northwest National Laboratory); GARNER, James (Oak Ridge National Laboratory); YOUNKIN, James (Oak Ridge National Laboratory); MARCH-LEUBA, Jose (Oak Rdige National Laboratory); POCHET, Thierry (IAEA)

Presenter: ELY, James (IAEA)

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