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Evolution of the Nuclear Safeguards Performance Laboratory PERLA on the Ispra Site of the Institute for Transuranium Elements

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Based upon the experience of many years of operation, the safeguards Performance Laboratory PERLA will be re-shaped in the near future (and relocated on the Ispra site such as not to interfere with decommissioning activities). During almost 30 years of successfully operating nuclear facilities in Ispra for supporting nuclear safeguards inspectorates with R&D, equipment development and training for in the meantime more than 1250 trainees, this laboratory is the main work-horse in this field and has functioned very frequently in the last years as easily accessible nuclear laboratory for external users, Even if a constant evolution took place in the last years, and additional facilities like the active neutron laboratory PUNITA or the ITRAP test laboratory for nuclear security R&D, testing and training have been taken in service, this step-change will allow refiguring the laboratory to face also new user expectations. NDA for safeguards continues to be a cornerstone of the measurement capacities complemented by experimental and advanced approaches, such as using active neutron interrogation, automation of measurements, complemented by Monte-Carlo simulations for neutron and gamma radiation. The tendency is also to integrate multiple plant signals (not only NDA measurements) in an overall assessment scheme and we envisage offering training and exercising capabilities for the inspectors also in this direction in the future.

This paper will thus provide some insight in the concepts for the future use of the nuclear facilities on the Ispra site, which is complementary to two other contributions to this symposium, i.e. one describing the activities of our sister unit in Karlsruhe on NDA Safeguards Training and another on the new Advanced Safeguards Measurement, Monitoring and Modelling Laboratory (AS3ML) being built currently in Ispra.

Country or International Organization

European Commission, Joint Research Centre, ITU, Nuclear Security Unit

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