

European Safeguards Research and Development Association  
Implementation of Safeguards Working Group  
Activities  
2011 - 2012

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As IAEA Integrated Safeguards became applicable by 2010 in all Non-Nuclear Weapon States (NNWS) of the EU with significant nuclear activities, the original mandate of the former Integrated Safeguards Working Group was changed and renamed to Implementation of Safeguards Working Group (IS WG) in 2011.

The objective of the IS WG is to provide the Safeguards Community with proposals and expert advice on the implementation of safeguards concepts, methodologies and approaches aiming at enhancing the effectiveness and efficiency of safeguards on all levels and serve as a forum for exchange of information and experiences on safeguards implementation.

To achieve the objective the following specific tasks had been identified by the group:

- Develop different methodologies and identify best practices to improve current and implement new safeguards approaches under Integrated Safeguards on the Community level;
- Identify the technical, practical, organisational and legal consequences of new safeguards approaches (SNRI, unpredictability) on plant operators and national, regional and international inspectorates;
- Promote the exchange of information and experience between facility operators and Safeguards Authorities to create and maintain a complete and transparent picture of safeguards implementation matters among the WG members;
- Study the possible utilization and quality control of activities performed by the regional and state systems of accountancy and control by the IAEA, especially those contributing to new safeguards concepts (Remote Safeguards Inspection, State-level approach, etc.);
- Address topics related to additional information, including open sources, export-import reports and the evaluation and quality control of information;
- Consider issues related to the overall state approach on the Community level, including the evaluation of transparency of the states and their impact on safeguards activities;
- To cope with challenges coming up in the nuclear renaissance, co-operate with other ESARDA Working Groups to identify R&D needs to comply with implementation requirements especially for emerging new type of facilities in the design phase.

One of the unique feature of the group is that its members and observers are coming from 19 countries (Austria, Belgium, Czech Republic, Estonia, Finland, France, Germany, Hungary, Italy, Lithuania, Netherlands, Norway, Poland, Slovak Republic, Spain, Sweden, Switzerland, UK, US), organisations (DG ENER (EC), JRC) and several operators. The relevant European Commission's

Safeguards Services who implement safeguards jointly with the IAEA in the EU are also permanent contributors to the WG's activities. EURATOM also acts as channel of communication between the IAEA and EU national authorities and operators, thus facilitating the implementation of IAEA IS in the EU territory.

In 2011 and in 2012 the WG held two well attended meetings each year with 20-30 participants. In 2011, the first meeting was held in March in Bad Zurzach, Switzerland, and the second in October during the ESARDA WG week in Ispra. In 2012, the first took place in May during the ESARDA Annual Meeting in Luxembourg and the other one in October in Ispra.

A major topic in all meetings was the information update on new developments and experiences of integrated safeguards implementation. The information discussed in the course of these "round table updates" delivered by each member over many years in the WG meetings is of significant value, therefore the group decided to collect the information on history of and experiences during the implementation phases of the IAEA's Integrated Safeguards (IS) in a structured way, by means of specially developed State information sheets. They will be used to compile a paper on the history of and experiences with the development and implementation of new concepts of Safeguards, in particular the IAEA's Integrated Safeguards (IS) in some European States represented in the IS WG. The paper is planned to be presented during the 2013 ESARDA Symposium.

In Bad Zurzach, we had a series of very interesting presentations. Our Euratom WG members informed us on the current status and their experiences of implementing Integrated Safeguards in the EU. Their presentation comprised the IS implementation framework in the EU, guidelines for common inspections under IS, arrangements between IAEA and Euratom for random inspections, and inspection agreements for all types of facilities, e. g. centrifuge enrichment plants, fuel fabrication plants, reactors, storage facilities, etc.. Erich Pujol from the IAEA, in former years also a member of the IS WG, gave a comprehensive overview on IAEA's concepts to move towards a safeguards system that is fully information driven. He explained IAEA's long-term strategic plan for the next 10 years, the planning process, strategic objectives and safeguards implementation and outlined the State-Level concept. Other presentations dealt with quantitative models for unannounced interim inspections and with the EC 428/2009 control lists, in particular on the NSG Trigger list included in Annex I of the AP. The meeting was complemented by a visit to the Swiss ZWILAG facility, where low and medium-level radioactive waste from Swiss nuclear power plants as well as from medicine, industry and research is processed. The site also provides interim storage for all types of radioactive waste and spent fuel assemblies from Swiss nuclear power plants.

In the second meeting in 2011 in Ispra, we took advantage of the fact that other ESARDA WGs met at the same time and had a joint meeting with the C/S WG on the first day. The main topics were safeguards at disposal facilities and issues of remote data transmission (RDT). We were informed on the actual status of final disposal projects in WG member states and on related R&D activities, e. g. seismic monitoring explorations. Concerning RDT, we got a summary of the INMM special session on "Information Security for Safeguards Monitoring Systems" and

discussed in the plenary how RDT can improve safeguards efficiency. The second day was devoted to IS WG issues. We discussed the above mentioned “State information sheet” template and had some concrete presentations on how it could look like. Such presentations were provided, among others, on France, Hungary and Germany. Another topic was the exchange of experiences on so called ‘small holders’ and ‘small amounts’. The intention was to collect practical problems and questions to submit them to Euratom and discuss it in the next meeting.

During the meeting in May 2012 in Luxemburg, the Commission representatives updated the WG on the current status of IS implementation in the EU, on the Euratom-IAEA co-operation structure and the results of liaison committee and dedicated working group meetings and other important safeguards implementation issues.

As a follow up of the last joint meeting, a very interesting topic was discussed in Luxemburg together with the C/S WG on the subject of data security of remote data transmission based on a study done by France. The study focused not on the technical solutions about remote data transmission but on the approach that was chosen by the French Authorities, with the acceptance of the European Commission. The idea is to use a classical method of risk assessment (EBIOS) and to apply it to a pilot site, for which the reprocessing plant of AREVA NC La Hague was chosen. The goal is to find the optimal compromise between the interest for the EC and that of the French Authorities. A bulk facility with high level of nuclear material flows requires a lot of analysis and large amount of information to be treated on a daily basis. On the other hand the increased security of data transfer to Luxemburg should satisfy national security concerns as well.

Another follow-up was on the issue of small amounts of nuclear material. Since several members identified good practices, problems and questions in connection to ‘small holders’ and ‘small amounts’ problem during former meetings, the WG had compiled these issues in the previous meeting and asked the EC on reflection, which was presented in Luxemburg. Most of the confusion originating from the fact that small holders are registered under different types of MBAs: CAM, LOFs, and National LOF and that of derogation mechanism were clarified and good practices identified.

During the ESARDA Annual Meeting in Luxemburg the IS WG also had a joint session with VTM WG on the new IAEA State-level concept, where representatives of the IAEA updated the group of the actual status of the concept and Germany presented its activity in connection to the Acquisition Path Analysis problem.

In the Ispra meeting an update was given about implementation issues at Gas Centrifuge Enrichment Plants using URENCO technologies. The 4 Treaties of Almelo, Washington, Cardiff and Paris provide the following obligations and practical implementation measures:

- Equivalent safeguards
- Protection of the “black box technology”
- Requirements on the use of nuclear materials and exports

- Security and classification Handbook for the 5 countries
- Security and Safeguards Working Groups
- Joint Committee and Quadripartite Committee

There were two presentations on Quality Control/Audit experiences. Austria reported on the Euratom audit that was carried out in the Atomic Institute which is also a training center for students and inspectors. During a Euratom routine inspection in September 2010, unaccounted nuclear material was found. It was decided jointly with the EC to plan an audit in March 2011, which was notified in January and took place on the 8<sup>th</sup> of March 2013. The main findings of the audit was that the responsibilities of SG officers were not defined explicitly and no formal assurance was given that people handling nuclear material (students) are aware of legal obligations, the documentation was insufficient, but NO weakness of NMAC system itself was detected. The main issue identified was the lack of proper management control. The quality control measures on SG activities should be implemented and properly documented. The case highlighted the need of awareness rising in academic areas. Spain also reviewed its voluntary audit that was carried out in ASCO NPP in 2008 with positive conclusions. One gap was detected concerning SG training, i.e. no specific courses exist for operators. Nowadays a forum is organized in Spain to exchange views on SG between operators, ministries, research centers and sometimes small users. The aim is to increase SG culture in the nuclear society.

In connection to this topic the outcome of the Workshop on Safety/Security/ Safeguards culture held in Belgium was presented to the group by the organizers. A lot of common principles were identified for the different cultures, but the difficulties to build a 3S culture were also pointed out: transparency and intelligence are competing with confidentiality culture in security. The conclusion was that 3S culture is preferable to 3 separate S's. Concerning SG, it was pointed out that Safeguards by design are of major importance for the future. Hungary presented its experience with the assessment and promotion of facility level SG culture. The Hungarian authority (HAEA) has an old and good culture in Safety. The national SG system is also efficient with a comprehensive domestic SG inspection system. Therefore a new method was introduced in 2010 to start assessment – improvement - follow-up 10 years cycle in order to raise the SG culture at the facility level. The preparatory phase consists of looking for the documentation and establishing a list of questions. The inspection time is divided in a kick-off meeting, the inspection itself and a closing meeting (3 days in total). A final assessment report is sent to the facility identifying good practices, suggestions and recommendation for improvement.

Based on these results a need for SG training for different levels of the facilities was identified. It should be a continuous dialogue to improve the SG Culture to gain the similar importance as Safety and Security Culture. The group decided to form a subgroup for the development on facility level guidance on SG Culture as well as recommendation for the content of training materials for the management, for the general facility staff and for the staff working in the SG field.