Improving SSAC capability through the application of an appropriate NMAC software: Experience of the Czech Republic

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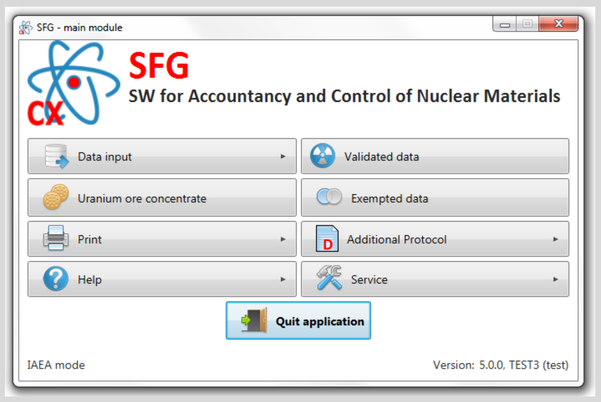
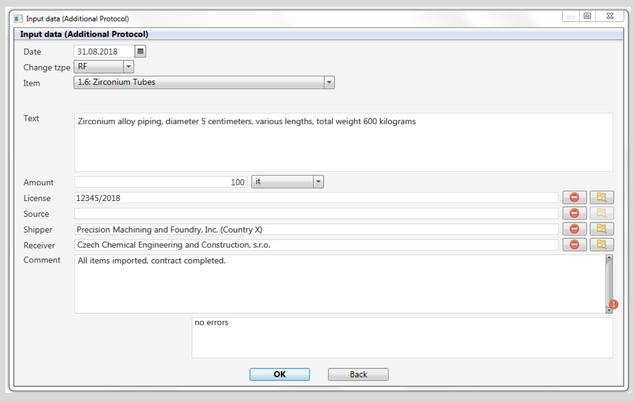
ABSTRACT

- The core objective of the respective paper lies in introduction and demonstration of detailed technical features and capabilities of the "SFG - Safeguards application for managing the SSAC"
- The SFG is used in the Czech Republic for maintaining the SSAC at both State and operator level.
- The paper explains the benefits provided by using the SFG in streamlining of day-to-day SRA regulatory operations in the area of NMAC; controlling export and import of other specified items; and submittal of required declarations to the IAEA.





Main window of the SFG (left) and window for AP data input (right)

INTRODUCTION

- The SFG was created in early 1990's as a modular platform and several times updated for managing the NMAC and SRA reporting functions to the IAEA
- It's capability has been continuously extended in support to overall Safeguards implementation (with regard to all IAEA, Euratom and national obligations)
- Additionally developed modules provided significant benefits for using SFG in streamlining of day-to-day SRA regulatory operations in the area of NMAC
- Most prominent modules cover monitoring of exempted, terminated and pre-34(c) nuclear material, controlling export and import of other specified items and submittal of required declarations
- The SFG is network based and uses Oracle Database Server with access through client PCs

MAIN FEATURES

- Processing data from LOFs – manual entering of data (ICRs and PILs)
- Importing data from facilities (reporting to Euratom using ENMAS)
- Editing and review interface for the entered data prior to their transfer to separate validated data
- Cross-checking between MBAs (SD vs RD codes matching)
- Cross-checking for international transfers (if relevant reports are provided by partner SRA of the other side)
- Checks based on conditions in issued licenses and Facility Attachments
- Special inventory change code RZ for movements between LOFs
- Calculation of MBR (including MUF)
- Preparing transfer of NMA reports to the IAEA
- Generation of various documents (BIL, GL, stratification)
- Largely customizable data query allowing for various searches and filters to be applied to the SSAC database
- Compliant with INFCIRC/153 and Code 10 requirements

MOST PROMINENT SFG MODULES

UOC MODULE

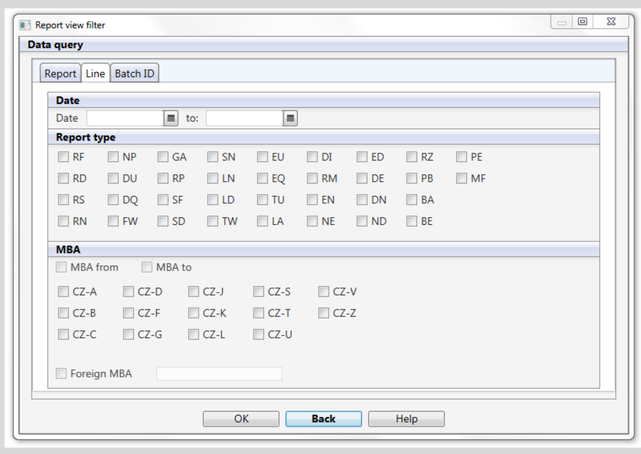
- The same accounting principles and procedures as for ordinary MBAs
- Only three types of inventory change operations allowed:
  1. UOC production,
  2. shipments and
  3. receipts
- No reports to the IAEA (only for national accounting purposes)
- Output from these "MBAs" = basis for CSA 34(a) and 34(b) notifications and AP Article 2.a.(vi) declarations

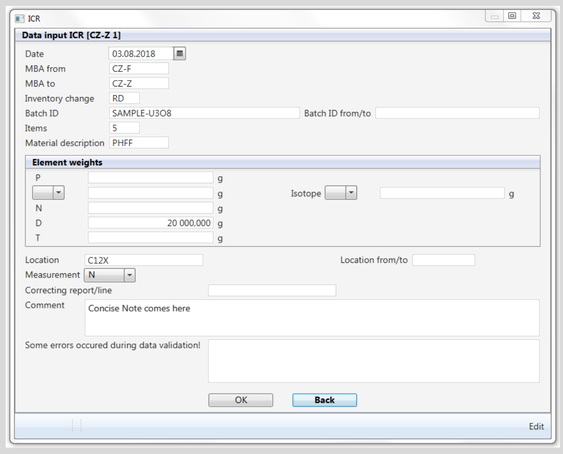
EXEMPTED MATERIAL MODULE

- Nuclear material when exempted (EU, EQ) in any standard MBA is automatically administratively transferred into a „special shadow MBA"
- Upon re-application of Safeguards (DU, DQ) in the nuclear removed from this „MBA" (for international shipments)
- Internal structure of this „MBA" corresponds with ordinary MBAs and KMPs/LOFs
- Only one type of operation allowed (RZ) for internal transfers within this "MBA" (allows for easy traceability within exempted inventory)

ADDITIONAL PROTOCOL MODULE

- Streamlines the process of submitting AP Article 2.a.(ix) declarations
- Keeps track of all issued export/import licenses (including expiration, quantity or type of items)
- Includes cross-checks and conditions preventing mistakes on data entry
- Provides assurance that the total number of items in license is not exceeded





SFG windows for Search Query (left) and Manual ICR input (right)

CONCLUSION

- Used in the Czech Republic for almost 30 years
- Decision to opt for a modular structure of the SFG proved to be invaluable, as it allows flexible responding to new Safeguards requirements
- SFG is a great asset in streamlining day to day Safeguards operations
- Powerful instrument for maintaining SSAC with capability going in several areas beyond IAEA requirements
- Internal logic, conditions and cross-checks are based on Code 10, INFCIRC/153 requirements and Facility Attachments
- The SFG meets IT security standards, supports SSL encryption and three access levels

FULL PAPER IS AVAILABLE ON THE IAEA CONFERENCES AND MEETINGS APP AND ON THE SAFEGUARDS SYMPOSIUM WEBSITE

PRACTICAL DEMONSTRATION OF THE SFG SOFTWARE WILL TAKE PLACE ON WEDNESDAY 7th NOVEMBER IN ESPACE CORNER FROM 12:30