

ABACC's SYSTEM OF NUCLEAR MATERIAL ACCOUNTANCY

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In December 1991, the Agreement between Brazil and Argentina for the Exclusively Peaceful Uses of Nuclear Energy entered into force [1]. The agreement, inter alia, determines the control over all nuclear materials in all nuclear activities in both countries. To verify this commitment, the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC) was created and the Common System of Accounting and Control of Nuclear Materials (SCCC) [2] established.

The Secretariat of ABACC started its operations in July 1992, and almost immediately, began to receive reports on the inventories of nuclear material present in all nuclear activities of each State Party.[3]

The Quadripartite Agreement [4], signed among Argentina, Brazil, the International Atomic Energy Agency (IAEA) and ABACC, entered into force on 4 March 1994 and, as of June 1994, almost all inspections have been carried out jointly by ABACC and the Agency.

The Initial Report on nuclear material submitted by Brazil and Argentina under the Quadripartite Agreement (as of 31 March 1994) involved the automated processing of the accounting data of each facility per category of nuclear material. ABACC sent the Initial Report to the IAEA on 30 April 1994.

Early in the beginning of its operations, ABACC started to develop its automated accounting system for a Personal Computer (PC), taking into consideration that its accountancy data base should be:

- structured in accordance with the reporting system established in Annex I of the General Procedures of the SCCC, that is, equivalent to Code 10;
- sufficiently flexible to allow the processing of data in different formats (ABACC received reports in five different formats prior to the entry into force of the Quadripartite Agreement);
- able to obtain in an effective and rapid manner the information requested by other units of ABACC;
- able to match shipments to and receipts from the MBAs;
- rapidly implemented since ABACC began to receive the accounting reports from the States Parties almost simultaneously with its implementation.

The software was fully implemented in the second semester of 1994 using Dbase III Plus and, during 1995, was changed to the Fox Pro for Windows. Many improvements were incorporated since then and others are planned to be incorporated in the next future.

At present, the main function of the software developed are:

- to input the data manually or in electronic media (diskette);
- to generate the accounting reports in the proper format for transmission to the IAEA by magnetic media (diskette);
- to check the fields based on the code 10 provisions;

- to calculate the nuclear material inventory for all categories for a selected Material Balance Area (MBA) and date. It is possible to consider each country as an unique MBA;
- to list all the inventory changes after a given day ordered by date and grouped by element category of nuclear material present in the selected MBA;

The program developed has shown to be satisfactory to fulfill the objective of ABACC as far as nuclear material accountancy is concerned.

The procedures followed by ABACC and the use of the software developed, allowed that the reports sent to the IAEA after the Quadripartite Agreement entered into force, had no significant number of mistakes. The mistakes were less than 2 % of the total entries sent to IAEA between April 1994 to April 1995 and practically 0% between April 1996 to April 1997.

Furthermore, with the utilization of the software developed and with the collaboration of the respective National Authorities that began to send its reports in magnetic media, the delay between ABACC receiving the reports and sending to the IAEA was reduced from about 8 to 2 working days. The provisions of the SCCC and the Quadripartite agreements foresee a maximum of 8 working days for ABACC for processing the accountings reports without introducing a extra report delay when are sent to the IAEA.

Statistics of the reports processed before and after the entry into force of the Quadripartite Agreement are showed.

REFERENCES

- [1] Agreement between the Republic of Argentina and the Federative Republic of Brazil for the Exclusively Peaceful Use of Nuclear Energy. INFCIRC/395. IAEA. Vienna, November 1991.
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- [4] Agreement between the Republic of Argentina, the Federative Republic of Brazil, The Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials and the International Atomic Energy Agency for the Application of Safeguards. INFCIRC/435. IAEA. Vienna, March 1994.