

IAEA/ABACC Procedures for the Joint Auditing of Accounting Records

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Abstract:

The Procedure for Joint Auditing of Records is the result of a series of discussions that started four years ago. In November 2000, ABACC and IAEA met for the first time aiming at the implementation of the joint system for auditing accounting records during inspections. A comparison study of the auditing procedures used by each of the Agencies up until that time was carried out. The study concluded that the main differences in the procedures were in how the ending date for the auditing period was defined and in the working papers used. The Agencies decided that modifications were to be made in ABACC's Software for the Auditing of Records (SARA) by adopting the IAEA criteria for the ending date for the auditing period and generating information in the format required by the IAEA.

One year later, at a meeting held in Vienna, ABACC introduced the new Software for Joint Auditing of Records (SJAR). SJAR was tested by the IAEA through simulation exercises based on actual data from representative inspections performed in Brazilian and Argentine facilities. In March 2002, ABACC inspectors started using SJAR 1.0 in the field with positive results. The field tests and the comments and suggestions provided by inspectors led to further improvements in the software. The English version of SJAR 2.0 was presented in Vienna in November 2002. In December 2002, a period of joint field tests with the IAEA began.

During 2003, ABACC provided training for IAEA and ABACC inspectors and the user's manual of the SJAR 2.0 was compiled in Spanish, Portuguese and English. On September 1st, 2004 the Procedure for Joint Auditing of Records was applied officially in the inspections performed by ABACC and by the IAEA in Argentina and Brazil.

Keywords: inspections, accounting, records, auditing

1. Introduction

In July 1991, Argentina and Brazil signed an Agreement for the exclusively peaceful use of the nuclear energy [1], which established a Common System of Accounting and Control of Nuclear Materials (SCCC) to be applied by the two States. The same Agreement created ABACC to administer and implement this Common System.

In March 1994 a Safeguards Agreement between Argentina, Brazil, IAEA and ABACC [2] entered into force. According to this Agreement, in implementing safeguards IAEA and ABACC shall, to the extent possible, work jointly and coordinate their work to avoid unnecessary duplication of safeguards activities.

Since the beginning of ABACC operations, its accounting unit is responsible for establishing and implementing the procedures for auditing of records, its evaluation and follow-up of discrepancies [3].

A software for use in field inspections was developed, in order to facilitate the completion of working papers by the inspectors avoiding calculations, to allow for the loading of operator's data in electronic media, to obtain results in electronic media, thus facilitating its evaluation and allowing the automate follow-up of discrepancies. The SARA (**S**oftware para **A**uditoria de **R**egistros de **ABACC**) was completed in 1999 and was started to be used on a routine basis in the beginning of 2000. The software has the following advantages:

- organizes the activities to be performed;
- checks all the information entered, for example, MBA codes, algebraic sign of element/isotope weight, etc;
- checks the relationship between different fields to assure that the numeric information entered by the inspector is correct;
- has a mechanism of error detection that does not allow finalizing the auditing if there is a discrepancy between the inspection data and the operator's book data. [4]

The first discussions between ABACC and IAEA concerning their respective methods for records auditing took place in 1997, as a result of the request of the Liaison Committee of the Quadripartite Agreement. In 2000 a decision at the IAEA/ABACC coordination meeting for the implementation of the Quadripartite Agreement led to the two organizations starting to work towards establishing a joint procedure for records auditing.

2. Initial Discussions

In November 2000 the first meeting between the two organizations was held in Vienna. The IAEA explained the procedures for auditing of records applied to facilities in Brazil and Argentina and showed copies of some working papers generated during a few actual inspections. ABACC explained its procedures for auditing of records, presented the SARA software, and showed the working papers generated. The use of actual inspection examples by both organizations was very useful as it permitted the comparison of the results and working papers of each organization.

The results of this comparison showed that both organizations had the same objectives and perform similar activities for records auditing. The main differences in the procedures refers to the ending date of the period to be audited, the format of the working papers and the information generated at the end of the inspection.

It was concluded that for a procedure to be common to both organizations it should be the combination of both present procedures and to attain this objective it was agreed to adopt the IAEA definition for the ending date of the period to be audited and to perform the necessary modification to the SARA software to include the option to generate working papers used by IAEA in hardcopy or electronic media.

With these provisions, the auditing could be performed jointly by both organizations and the results would be obtained in the format suitable for its processing and evaluation by each organization.

Another meeting was held in the beginning of 2001, where new discussions on the procedures of each organization took place, for a better understanding of the information to be generated by the software for IAEA processing and evaluation.

3. Software development

The software SARA was developed in Fox Pro for Windows and allows performing automatically the auditing of records in four main steps:

- step 1: verification that the inventory value at the ending date of the previous audited period remains the same (working paper VR-A),
- step 2: comparison of operator's ledger data with the Inventory Change Reports (ICR) data (working paper VR-B),
- step 3: inputting of the accounting data electronically or manually that were not yet sent through ICRs, including corrections affecting previously audited periods (working paper VR-C),
- step 4: determination of the inventory value at the ending date of the present inspection, based on

data computed during the inspection, and comparison with the ledger value recorded by the operator; for physical inventory verification inspections, the values for book adjusted (BA), physical ending (PE) and material unaccounted for (MUF) are also checked (also VR-A).

To allow a joint use of this procedure, a common ending date of the period to be audited was defined as the last day of the month preceding the inspection, except for physical inventory verification inspections, which is the day of the physical inventory taking.

The mechanism of the procedure was maintained and the necessary modification was introduced in the software SARA to allow the generation of databases for IAEA use and the printing of the working papers used by the IAEA in the auditing of records, namely Accounting Records Examination and Updating (M2, M6) and Comparison of Records with Reports (M5).

In November 2001 ABACC demonstrated the Software for Joint Auditing of Records (SJAR) in Vienna. Inspectors of the IAEA Safeguards Operations B (SGOB) tested the software by performing examples using actual inspection data and presented some comments, in particular with respect to the output generated for IAEA use and processing. Work was also done with IAEA Safeguards Information Technology (SGIT) staff with a view to assess the use of the electronic output of the SJAR to feed IAEA logsheet program, software by which, IAEA inspectors process the information collected in the field.

New modifications were introduced in the SJAR and in March 2002 ABACC inspectors commenced to test the software in the field. The software performed well however the inspectors made a number of comments and suggestions that could improve the software performance. The introduction of these modifications and the inclusion of English as working language in addition to Spanish, led to the version 2.0 of the software.

This version was presented in Vienna in November 2002. In order to evaluate the software operation, the working papers obtained by ABACC inspectors using the software during the testing period, which started in March 2002 were compared with the IAEA logsheets obtained by IAEA inspectors from the same inspections.

The 2.0 version was loaded to IAEA notebooks and a new set of tests was performed using real data of inspections performed in Argentinean and Brazilian facilities. IAEA inspectors presented suggestions to some wording in the software and suggested that a list of tips on SJAR be prepared.

The Agency noted that it would be necessary to compare the electronic ICR data loaded in SJAR (form VR-B) with the ICR data provided by IAEA database, and requested ABACC to provide copies of VR-B before each inspection.

It was noted that the format and the information contained in IAEA logsheets (M2, M6) and (M5) as produced and printed by the SJAR are adequate, except for information concerning the quantity of plutonium for on load reactors shown in form (M2, M6), which should be updated with the fuel discharged from the core and should show the number of items. ABACC should modify the software before the testing period.

Testing was also performed with the IAEA logsheet program and it was concluded that although the electronic output of SJAR were suitable to be input to the logsheet program, this software does not permit the partial loading of modules. IAEA/SGIT would study the problem and try to find a solution.

4. Software Testing

A period of joint field tests with the IAEA started in December 2002, during which the auditing in field was done with the SJAR as well as manually using IAEA logsheets.

In September 2003 training in the SJAR was provided to Agency inspectors in Vienna and a meeting was held to evaluate this joint tests period. It was concluded that the information generated by SJAR for IAEA logsheets (M2, M6) and (M5) was then adequate.

It was noted that there is a need to improve the comparison process of ICR data generated by SJAR with those generated in IAEA database and the Agency suggested to investigate the possibility of electronic comparison. The manual input of updating data (working paper VR-C) was also of concern, especially for facilities with high number of inventory changes and therefore ABACC proposed to agree with the States to provide this information in electronic media, as well as the itemized list of the physical inventory taking.

The testing period was extended and the inspectors continued to provide feedback on the software, which resulted in new improvements. ABACC prepared the draft Procedures for the Joint Auditing of Accounting Records, including instructions for the use of SJAR, and finalized the list of tips for SJAR operation.

5. Joint Procedure Implementation

A new round of training in SJAR and the last evaluation meeting was held in Vienna in April 2004.

For determined facilities having a lot of inventory changes, the operator is presently providing in magnetic media the data of the updating period (VR-C) and the PIT itemized list, which has optimized the time spent in auditing.

It was concluded that it is possible to use the Computerized Inspection On-Site Package (CIOSP) to make the comparison of the electronic ICR data loaded in SJAR (form VR-B) with the ICR data provided by IAEA database. This would be done by loading to CIOSP one of the database files generated by the SJAR. It was noted that it is possible to import IAEA module (M2, M6) into the CIR-Web program by processing one of the files generated by SJAR.

The draft Procedures for the Joint Auditing of Accounting Records was discussed. This document, available in English, Spanish and Portuguese, describes the joint procedures for auditing and has one annex concerning the instructions to operate the software and another where the operational arrangements for the joint auditing are described.

Main provisions determined in the operational arrangements are the following:

- each organization shall provide its inspector with a notebook to perform the auditing; ABACC will be responsible for providing the printer;
- any improvement or modification to the software shall be agreed between the two organizations; the installation and correction of errors shall be done by ABACC;
- inspectors shall be re-trained at least once every two years;
- the list of qualified inspectors shall be exchanged between the two organizations every half a year;
- at least one trained inspector from each organization shall participate in the auditing;
- the auditing is carried out by two inspectors, one of each organization;
- the organization responsible for the operation of the computer in a certain mission is randomly selected at the pre-inspection meeting; the other agency's computer is the spare, to be used in case of any problem with the main computer;
- at the end of the inspection, the inspectors shall go through a menu in the software with allows both organization to have the same information in the hard disk and in the floppy disk.

The official application of the joint procedures started as of September 2004.

In March 2005 ABACC provided another round of training for a new group of SGOB inspectors. At this opportunity the initial training on the SJAR operation was provided to staff of the IAEA Training Section and will be finalized in August 2005. Thereafter, the IAEA Training Section will be responsible for providing re-training to IAEA inspectors, although they are invited to participate in ABACC training to its inspectors in Brazil and Argentina.

6. Conclusion

The joint procedure does not imply an additional effort and brings a significant reduction in the total time dedicated to the auditing, since both organizations are applying a single procedure. The

application of the procedure also led to the national authorities of Brazil and Argentina to provide data in electronic media, which also helped to speed up the auditing activities.

The software SJAR also helped in the detection and correction of mistakes in records and reports increasing the quality of reports provided to the IAEA.

The work developed was possible in such a short time due to the cooperative and positive approach took up by the two organizations, following the guidelines of the Quadripartite Agreement, which advises the joint work between IAEA and ABACC, avoiding duplication of safeguards activities, in accordance with compatible safeguards criteria and reaching its own independent conclusions.

This development is an important step for a future implementation of a full computerized book auditing system from the facility general ledger to the inspection report with all operators providing all data electronically.

7. 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.

[2] 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.

[3] R.O. Nicolás, "ABACC's Records Auditing Procedures", Proceedings of the 19th ESARDA Annual Symposium, Montpellier (1997), EUR 17665, p 723.

[4] R.O. Nicolas, "Software for Records Auditing During Inspections", Proceedings of the 44th INMM Annual Meeting, Phoenix, Arizona, USA, July 2003.