

Annual Report

Message from the Secretary	40
About ABACC	42
Celebration of the 25 th Anniversary of ABACC	44
Application of the SCCC	50
Technical Cooperation	53
Training	54
International Activities	55



Message from the Secretary

The publication of the 2016 Annual Report complies with that established in article XI, item i, of the Agreement between the Federative Republic of Brazil and the Argentine Republic for the Peaceful Use of Nuclear Energy, the Bilateral Agreement, and article 16, item h, of the Regulations of the Secretariat of ABACC. It presents the activities developed by ABACC during the year in which it celebrated 25 years of an effective and very successful existence. It has the objective to inform to societies in general, and especially to the Argentine and Brazilian societies, the activities performed by ABACC in this year.

ABACC performed 111 inspections, of which 55 were in Argentine facilities, and 56 in Brazilian facilities.

As a result of the performed activities of accounting, verification and evaluation, the Secretariat can conclude that during 2016 no indication was detected of any diversion of nuclear materials subject to the Bilateral Agreement.

The respect and the technical level maintained in the relationship between ABACC and the nuclear authorities of both countries were fundamental factors for the complete compliance with this Agreement.

It is important to highlight that these results were possible due to the dedication and professionalism of the officers, inspectors and support staff that work at ABACC, which demonstrated in the practice, the efficiency and effectiveness of ABACC for the past quarter of a century.

We have achieved important advances in several segments: we have acquired equipment with the latest modern technology, we have offered a large number of courses, new specialists have been included in the team of inspectors, we have made progress in the validation of the “ABACC-Cristallini” method, which had the fundamental collaboration from the network of support laboratories to ABACC.



For the management of the Common System of Accounting and Control of Nuclear Materials (SCCC) and the Quadripartite Agreement, ABACC organized technical and coordination meetings between the Parties to coordinate the activities of the application of safeguards, in order to avoid the duplication of human and material resources.

In addition to the activities designed to comply with the institutional mission, a series of activities took place to celebrate the 25 years of ABACC, with presentations and events in national and international institutions.

Finally the Secretariat thanks the Governments of Argentina and Brazil for the recognition and permanent support that they provide to ABACC, which assured the financial resources required for the development of the activities and made possible the success achieved in the period.



Sergio Gabriel Solmesky



About ABACC

History and Mission

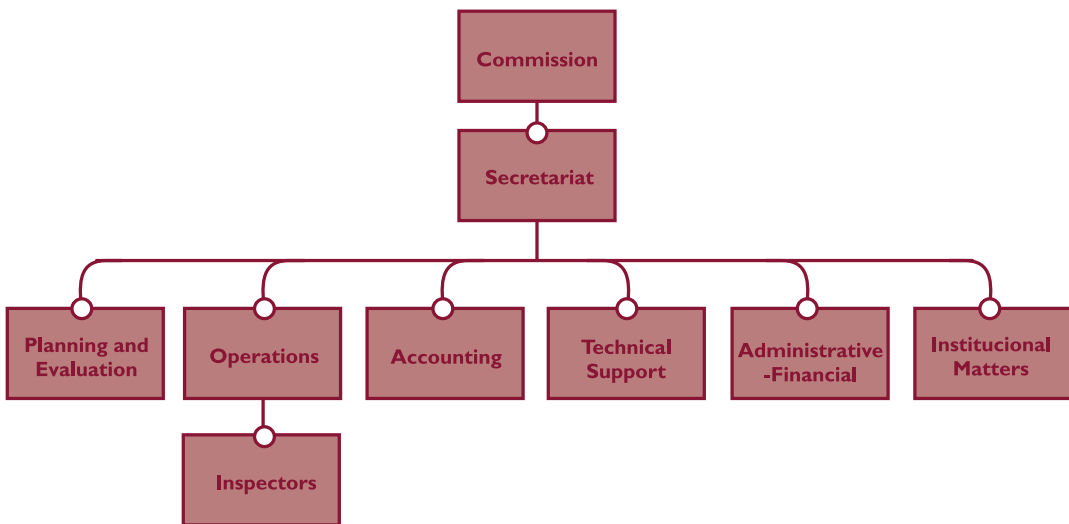
The Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials was created on July 18, 1991, with the signing of the Agreement between the Federative Republic of Brazil and the Argentine Republic for the Exclusively Peaceful Use of Nuclear Energy, known as the Bilateral Agreement. After being approved by the Congresses of the two countries, the Bilateral Agreement entered into force in December, 1991.

The mission of ABACC is to guarantee to Argentina and Brazil that all the nuclear materials and facilities in the two countries are being used for exclusively peaceful uses.

In order to comply with this mission, ABACC administers and applies the Common System of Accounting and Control of Nuclear Materials (SCCC), which was also created by the Bilateral Agreement. The SCCC establishes the procedures that are applicable to the two countries, thereby guaranteeing the consistency of the obtained results.

Organization Chart

The organization chart of ABACC is represented in the figure below.



The Commission, the governing body of ABACC, is composed of four members with each country appointing two members.

The Secretariat, the executive body of ABACC, is composed of twelve professionals, of which six are Argentine and six are Brazilian. The secretary and the deputy secretary alternate each year as the Secretary of ABACC.

ABACC has a total of 93 inspectors, appointed by the countries, of which 50 are Argentine and 43 are Brazilian. When they are on a mission of inspection, the inspectors are considered as employees of the Secretariat.

Eleven administrative and auxiliary staff provide support in the daily routine activities and are essential to the successful operation of the Secretariat.



Celebration of the 25th Anniversary of ABACC

Events

In 2016, ABACC celebrated 25 years in the compliance of its mission to provide guarantees to Brazil and Argentina with respect to the exclusively peaceful use of nuclear energy in their territories. Several events were organized in Argentina and Brazil to commemorate the twenty-fifth anniversary of ABACC:

- Seminars promoted by the Brazilian Association of International Relations at the Federal University of Minas Gerais, Belo Horizonte, Brazil, on May 19, and at the Federal University of Goiás, Goiânia, Brazil, on May 30.
- Round table “ABACC 25 years as an instrument for nuclear non-proliferation”, organized by the Brazilian Society for the Progress of Science, during its 68th Annual Meeting, at Porto Seguro, Brazil, on July 7.
- Ceremony to celebrate the XXV Anniversary of the Agreement of Guadalajara, organized by the Ministerio de Relaciones Exteriores y Culto, on August 5, at Palacio San Martín, Buenos Aires, Argentina.
- Ceremony for the commemoration of the 25 years of ABACC, organized by ABACC, on August 29, in Rio de Janeiro, Brazil, in which high level authorities from Brazil and Argentina participated. All the ex-secretaries of ABACC were honored at the event.
- Seminar promoted by the Centro Argentino de Relaciones Internacionales (CARI), on September 20, in Buenos Aires, Argentina.
- Round table “ABACC: 25 years building peace”, at the 3rd Seminar of International Relations of the Brazilian Association of International Relations, held at the Federal University of Santa Catarina, Florianópolis, Brazil, on September 30.
- Launch of the book “The ABACC Model: a landmark in the relations between Brazil and Argentina”, on October 21st, at Santa Maria, Rio Grande do Sul, Brazil. The book was published by the Federal University of Santa Maria and included articles by academics from Argentina, Brazil and abroad.



- Seminar “El Acuerdo Bilateral como configurador de las Políticas Nucleares de Argentina y Brasil”, organized by the Diretoria Geral de Diplomacia Parlamentar do Senado Argentino, on November 7, in Buenos Aires, Argentina.
- Visit of the Director General of the International Atomic Energy Agency, Yukiya Amano, to the headquarters of ABACC, on November 25. He unveiled a commemorative plaque referring to the visit.



XXV Anniversary of the Guadalajara Agreement
August 5th,
BUENOS AIRES, ARGENTINA.



○
**Seminar promoted by
 the Centro Argentino de
 Relaciones Internacionales
 (CARI)**
 September 20th,
 BUENOS AIRES, ARGENTINA.



○
**57th Annual Meeting
 of the Institute of Nuclear
 Material Management
 (INMM)**
 July 25th,
 ATLANTA, ESTADOS UNIDOS

○
**68th Annual Meeting of
 the Sociedade Brasileira
 para o Progresso da
 Ciência (SBPC)**
 July 7th,
 PORTO SEGURO, BRAZIL.





Commemoration of the 25th anniversary of ABACC
August 29th,
RIO DE JANEIRO, BRAZIL.



**Latin American Section/
American Nuclear
Society (LAS/ANS)**
June 20th,
RIO DE JANEIRO, BRAZIL.



**Visit of the Director
General of the IAEA
Mr. Yukiya Amano to
ABACC headquarters,**
November 25th,
RIO DE JANEIRO, BRAZIL



Declarations

The following declarations were made by authorities in tribute to the 25 years of ABACC.



“Los dos mandatarios reafirmaron “el derecho inalienable de los Estados a la tecnología nuclear para fines pacíficos, como también el carácter estratégico del diálogo, de la coordinación y de la confianza consolidada entre Argentina y Brasil en el campo nuclear”, según difundió hoy la Presidencia Argentina.

Ambos también destacaron que la creación de la ABACC “permitió superar desconocimientos y desconfianza mutuas y lanzar las bases de una relación transparente y cooperativa”.

Joint statement by the President of Argentina, Mauricio Macri, and the Vice-President of Brazil, Michel Temer



“Comemoramos ontem, 18 de julho, os 25 anos da assinatura do Acordo de Guadalajara para o uso exclusivamente pacífico da energia nuclear entre Brasil e Argentina. Entre suas inovações, o Acordo determinou a criação da Agência Brasileiro-Argentina de Contabilidade e Controle de Materiais Nucleares (ABACC) para verificar o compromisso assumido por Brasil e Argentina de perseguir de forma inequívoca o uso exclusivamente pacífico da energia nuclear e para administrar o recém-criado Sistema Comum de Contabilidade e Controle de Materiais Nucleares”.

Joint statement by Chancellor Susana Malcorra of the Ministry of Foreign Affairs and Worship of Argentina, and Chancellor José Serra of the Ministry of Foreign Affairs of Brazil





“On the twenty-fifth anniversary of the establishment of the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC), the Secretary-General congratulates both Governments on this achievement. It is testament to their enduring commitment to nuclear disarmament and non-proliferation”.

Declaration of the Secretary-General of the United Nations (UN), Ban Ki-moon



“I warmly congratulate Brazil and Argentina on the 25th anniversary of ABACC, the Brazilian –Argentine Agency for Accounting and Control of Nuclear Materials. This is a very important and successful achievement by their Governments in the area of nuclear verification”.

Declaration of the Director-General of the International Atomic Energy Agency (IAEA), Yukiya Amano



“Al celebrarse 25 años de la creación de la Agencia Brasileño-Argentina de Contabilidad y Control de Materiales Nucleares (ABACC), Rafael Grossi, Embajador de la Argentina ante el Organismo Internacional de Energía Atómica (OIEA), expresó que “se trata de uno de los aniversarios más dignos de recuerdo y de homenaje que registra la política exterior contemporánea en nuestro país, en la región y en el mundo”.

From the Argentine Ambassador in Austria, Rafael Grossi



Application of the SCCC

The following table presents the facilities that are subject to verification by ABACC.

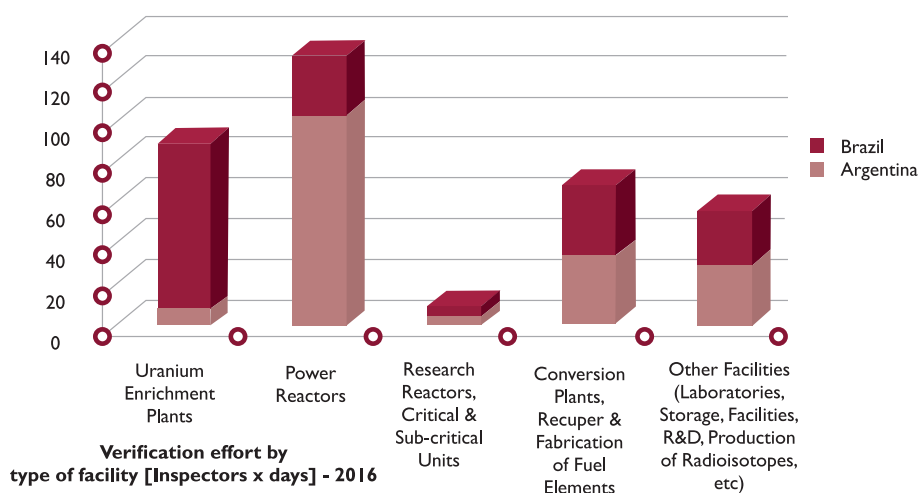
Type of Facility	Argentina	Brazil	Total
Conversion and Fuel Fabrication Plants	9	2	11
Uranium Enrichment Plants	2	3	5
Power Reactors	5*	3**	8
Research Reactors/Critical and Sub-Critical Units	7	8	15
Others (Research and Development Facilities, Storage Facilities, etc.)	27	10	37
Total	50	26	76

* One under construction and one in the planning stage

** One under construction

In 2016, ABACC performed 111 inspections in the nuclear facilities of both countries, including the design information verifications. The effort of the inspection applied totaled 867 inspector-days in the activities of pre-, in situ and post- inspection.

The following figure demonstrates the inspection effort distributed by type of facility. It can be observed that the uranium enrichment plants and the power reactors are the facilities that require the most inspection effort.



Considering the importance of the availability of new generation equipment to guarantee the continuity of the control of the inventory of the nuclear material in the facilities under safeguards, the Secretariat took actions to purchase and install the Next Generation Surveillance Systems – NGSS, in order to replace the equipment that are close to the end of their useful life.

The Secretariat gave special emphasis on the implementation of the unattended monitoring system for the verification of the spent fuel transfers to the dry storage silos at the Central Nuclear Embalse. The advances obtained with the unattended monitoring system have the objective to reduce significantly the inspection effort in this nuclear facility.

ABACC and the IAEA have established procedures for the common use of the electronic seals EOSS (Electronic Optical Sealing System), which will replace the VACOSS seals (Variable Coding Sealing System), whose production and maintenance have been discontinued.

The activities for the certification of the ABACC-Cristallini Method for the sampling of uranium hexafluoride in enrichment plants with ASTM International were followed up. An inter-laboratorial program was started with the participation of eight laboratories, from Argentina, Brazil, and abroad. The laboratories received samples of nuclear material collected using the ABACC-Cristallini Method, for the isotopic analysis by mass spectrometry. The obtained results will be fundamental in the certification process of the method.

During the year, fourteen meetings, either technical or for coordination purposes were held with the national authorities. The main topics for the Argentine facilities were the transfer of the spent fuel in the power reactors and safeguards procedures for the uranium conversion plants. For the Brazilian facilities, the main topics were the safeguards measurements and techniques for the uranium enrichment and fuel fabrication plants, and the optimization of the installation of the surveillance system used at the Angra I reactor.

Regarding the coordination of activities between ABACC and the IAEA, seeking to increase the efficiency and effectiveness of the safeguards applied in Brazil and Argentina, a technical meeting was held between representatives of the two agencies at the ABACC headquarters. The main topics discussed were the review of the construction plans of the new facilities,



the review and/or elaboration of safeguards approach, the status of the procedures for the common use of equipment and of the methods and techniques of safeguards, the procedures for joint inspections and the training of inspectors.

In 2016, it was held the Liaison Subcommittee Meeting (May 20, Rio de Janeiro, Brazil) and the Liaison Committee Meeting (October 24, Buenos Aires, Argentina) of the Agreement between Brazil, Argentina, ABACC and the IAEA for the application of Safeguards – the Quadripartite Agreement. The Liaison Committee is the most important forum for the analysis of the state of the implementation of the safeguards of the Quadripartite Agreement and the coordination arrangements between the Parties. The meetings offered the opportunity to examine significant questions, to discuss matters in progress and to agree on solutions designed to improve the verification activities of nuclear materials and facilities in the two countries.



Technical Cooperation

With respect to the cooperation with institutions that work in the area of nuclear safeguards and to advance in the techniques and methods used therefore increasing the efficiency and effectiveness of the verification activities of ABACC, the following activities can be highlighted this year:

- Field tests for the potential use of 2D laser technology as a method of containment in the dry storage of spent fuel elements under construction at the Central Nuclear Presidente Juan Domingo Perón. The application of this technology brings benefits such as, for example, lower radiation exposure for the inspectors and less impact for the operator in the maneuvers with the spent elements in the storage. These tests are being developed in cooperation between ABACC, the Joint Research Centre, the IAEA and the Autoridad Regulatoria Nuclear of Argentina.
- Field tests for the potential use of the containment system with ultrasonic seals in the spent fuel storage pools at the Central Nuclear Presidente Juan Domingo Perón. This project is also developed with the Joint Research Centre and with the participation of the IAEA and the Autoridad Regulatoria Nuclear of Argentina. It strengthens the continuity of the knowledge of the inventory of the nuclear material of the facility and reduces the inspection effort.
- With respect to the technical cooperation with the IAEA, representatives from ABACC participated in the “Technical Training Meeting on Technologies for Safeguards Joint Use”, held in Vienna, in November. The participants from ABACC and the IAEA had the opportunity to exchange experiences regarding containment and surveillance systems, procedures for the international transport of samples, network security mechanisms, use of instruments and techniques measurement of neutrons, and the state of health of the safeguards equipment.
- In cooperation with the United States Department of Energy, activities were carried out in projects of mutual interest, with an emphasis in the following areas: analysis techniques for environmental samples, guarantee of the quality of the analytical laboratories of the ABACC network, and development of procedures for the UF_6 sampling by the ABACC-Cristallini Method.



Training

The following table presents the courses that were held in 2016 for the training of inspectors.

Course	Date	Location	N°. of Participants
Application of Ultrasonic Seals	6 - 13/04	Buenos Aires, Argentina	20
Training in the 3D Laser System	6 - 8/09	Buenos Aires, Argentina	14
Training in the 3D Laser System	12 - 14/09	São Paulo, Brazil	13
Training in the Procedures Applied in the Enrichment Plants of Brazil	3 - 7/10	Rio de Janeiro and Resende, Brazil	11*
General Course of Safeguards	24 - 28/10	Buenos Aires, Argentina	19

* 5 inspectors from the IAEA took part in this course.

The courses had the collaboration of the national authorities of Brazil and Argentina, the Centro Tecnológico da Marinha em São Paulo and the Indústrias Nucleares do Brasil.



International Activities

In 2016, ABACC participated in the following activities:

- “Safeguards Culture Workshop”, April 26 to 27, organized by the Institute of Nuclear Material and Management (INMM), held at the Texas A&M University, United States.
- Technical Meeting for the Production of Work Standards for Safeguards, June 12 to 17, International Atomic Energy Agency, Vienna, Austria.
- 38th Annual Meeting of ESARDA - European Safeguards Research and Development Association, July 24 to 27, in Luxembourg.
- 57th Annual Meeting of the Institute of Nuclear Material Management (INMM), July 24 to 28, Atlanta, United States.
- Meetings of the Board of Governors of the International Atomic Energy Agency, Vienna, Austria.
- 60th General Conference of the International Atomic Energy Agency, September 26 to 30, Vienna, Austria.





Av. Rio Branco, 123/Grupo 515 - Centro
CEP: 20040-005 - Rio de Janeiro - Brasil
Tel.: +55 21 3171-1200
www.abacc.org.br
info@abacc.org.br