ABACC

2010

Informe Anual

Relatório Anual

Annual Report

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20 years ago, Argentina and Brazil eliminated a burst of accusations from the international community that was casting doubt on the peaceful objectives of their nuclear programs, by opening the doors of all of their nuclear facilities, first, for inspectors from their neighbor country

ENGLISH

ABACC

We are pleased to present the

Annual Report 2010

This report is published in 2011, which marks the 20 year anniversary of ABACC. The date has been extensively celebrated and we have, during the year, received several displays of recognition of the work performed by ABACC in these two decades. There have been statements and declarations made by ex-secretaries and experts from representative institutions in the area of nuclear safeguards. In order not to forget these praises, we have highlighted some of them in this report.

and, then, for the International Atomic Energy Agency. An example to be followed towards serious scientific and technological development by two neighbor countries.

Elias Palacio
Secretary of ABACC from January 1997 to January 2006

ABACC has made a very substantial contribution to regional nuclear disarmament and non-proliferation by providing for a sound regional framework for the application of International Atomic Energy Agency (IAEA) safeguards and facilitated the entry into force of

MESSAGE FROM THE SECRETARY

The Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC), in accordance with article XI, item i, of the Agreement between the Federative Republic of Brazil and the Argentine Republic for the exclusively peaceful use of nuclear energy, and complying with that established in article 16, item h, of the Regulation of the Secretariat of the ABACC, presents its 2010 ANNUAL REPORT.

This report maintains the same format as the reports published since 2007, subdivided according to operating areas. This allows for an easier and clearer understanding of the described operations.

In compliance with its mission – the central objective of which is the application of safeguards in the nuclear facilities and for all the nuclear material of Brazil and Argentina, ABACC performed 99 inspections during 2010, of which 58 were in Argentine facilities and 41 in Brazilian facilities. As a result of this work, ABACC can confirm that Argentina and Brazil performed their nuclear operations in total compliance with the commitments agreed with respect to nuclear safeguards and those of non-proliferation.

The Secretariat recognizes that these results were only possible due to the dedication and professionalism of its officers, inspection team and support staff.

Among the most important events in 2010 was the visit of the Director General of the International Atomic Energy Agency - IAEA, Yukiya Amano, to the ABACC headquarters in Rio de Janeiro, during a mission to Latin America at the beginning of the year. This reinforced the understanding between both the agencies and reiterated the importance of the mutual cooperation in the safeguard application operations, performed as a result of the previous agreements entered into force by the parties.

It is also highlighted that on 3 August 2010, the President of the Argentine Republic, Cristina Fernández de Kirchner, and the then President of the Federative Republic of Brazil, Luiz Inácio Lula da Silva, held a meeting in the city of San Juan, Argentina, in order to review the progress of the bilateral cooperation with respect to the peaceful uses of nuclear energy.

the Treaty of Tlatelolco, the nuclear-weapon-free zone encompassing of the entire Latin America and the Caribbean region.

Ban Ki-moon - UN Secretary-General in the statement on the commemoration of the 20th anniversary of ABACC

This emphasized the singular role of the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials as a building mechanism for mutual and international trust, which guarantees that all the nuclear operations in Argentina and Brazil are fully safeguarded.

Accordingly, it can be confirmed that ABACC has provided a unique contribution to the international non-proliferation regime. This should be fully recognized as a result of the promotion of the cooperation and free access of Argentina and Brazil to the sensitive technologies in the peaceful uses of nuclear energy. In this regard, it was decided that ABACC, whose system of safeguards constitutes a fundamental pillar of the bilateral cooperation in nuclear matters, should be constantly improved and reinforced in its operations.

The ABACC Secretariat, in accordance with its Commission's guidance, has to face up to these new challenges and seek the continued improvement of its technical and administrative operations.

An example of this effort was the satisfactory result -during 2010- of the evaluation of the sampling method of uranium hexafluoride in enrichment plants, known as the "ABACC-Cristallini Method", developed by ABACC. This method can advantageously substitute the techniques currently in use and its international approval is proceeding in a study with the IAEA and the American Society for Testing and Materials (ASTM).

Another noteworthy result is the restructuring of the ABACC digital network which was carried out in 2010, both in the Rio de Janeiro central headquarters and the offices in Buenos Aires. This restructuring resulted in an increase in the efficiency and security of the Agency's information management.

The search for excellence has been a constant concern in ABACC's history. With this objective, it has developed a policy designed to further qualify its officers and the inspection team. During 2010, several training courses were held, which particularly included the large number of Argentine and Brazilian inspectors that had been incorporated into the ABACC inspection team in recent years.

ABACC also participated in several international forums, presenting technical studies or explaining its operations. Highlights included the participation at the NPT Review Conference held at the United Nations, in New York, in May, and the 54th IAEA General Conference held in Vienna, in September.

At the beginning of the NPT Review Conference, the ABACC Secretariat presented a declaration at the assembly, in which it highlighted the original ABACC model and the atmosphere of mutual trust that has continued between Brazil and Argentina for the almost 20 years of the institution's existence. At the end of the conference, an institutional presentation was made – in a parallel event – to the representatives of the delegations present.

Because of their importance, it is appropriate to highlight the coordination meetings with the parties of the Quadripartite Agreement, which are essential forums for the sound management of this Agreement and the SCCC.

The Secretariat hopes that the reading of this report allows a clear understanding of the operations performed by ABACC during 2010 and, at the same time, demonstrates that the Agency is complying efficiently and effectively with its mission.

Antonio Abel Oliveira
SECRETARY

At the ABACC, we have built a pioneer entity for the South American integration, where Brazilians and Argentines work together towards a major objective: ensuring peace between their countries and in the region. As far as I am concerned, this daily cooperation was one of my richest experiences, both from a personal and a professional point of view. ABACC was a fundamental element for the viability of Mercosur and should be used as a model for the institutionalization of an entity encompassing four or more countries in our continent. An of-

THE COMMISSION´S ACTIVITIES

The ABACC Commission, which is responsible for providing the political guidelines to the Secretariat, is composed of four members: two from Argentina and two from Brazil.

In 2010, the Argentine representatives were the Minister Gustavo Eduardo Ainchil and Dr. Francisco Spano; the Brazilian representatives were the Ambassador Carlos Sérgio Sobral Duarte and Dr. Odair Dias Gonçalves.

The Commission held meetings in April, August and December.

At the first meeting, the Secretariat presented the results of the 2009 Balance Sheet and the 2009 Auditor's Report to the Commission, both of which were approved.

The Commission also approved the renewal of the employment contracts of the two secretaries and the proposal of a Brazilian inspector for the team of ABACC inspectors.

Also at this first meeting, the Commission requested that the courses and training offered by the Secretariat should include the subject "Additional Protocol", in order that the inspectors are well aware of this and are able to maintain the inspections within the limits of the Quadripartite Agreement.

ficial of the European Community visiting the ABACC told me, confidentially, that he only believed in those international institutions that had headquarters and a team of professionals. He was right in trusting the ABACC.

Carlos Feu
Secretary of ABACC from March 1992 to October 2002

The Commission also directed that the Secretariat judiciously analyze the new safeguard measures that may have an impact on the safeguards approach that are being applied in the facilities.

At the August meeting, the Secretariat presented the proposal of the Work Plan and Budget for 2011, which were widely discussed and then approved by the Commission.

At the December meeting, the Commission delivered to the Secretariat the document "Instructions to the ABACC Secretariat". This listed a series of measures and actions to be taken by the Secretariat regarding the landmark 20 year anniversary of ABACC.

At the end of this meeting, in accordance with the ruling procedure of the rotation of the Secretariat, the Minutes for the Transfer of the Secretariat were signed: Dr. Odilon Marcuzzo do Canto became the secretary and Dr. Antonio Abel Oliveira the deputy secretary.

In a constantly changing world, sometimes, our mutual survival depends on creativity and on innovation. Certainly, ABACC has become a Brazilian and Argentine innovation in the field of international safeguards. Rather than a control regimen, the ABACC is a consolidated organization whose creation has materialized an efficient cooperation mechanism. The existence of ABACC proves to the world the extent to which a system can be effective when it is

TECHNICAL ACTIVITIES

APPLICATION OF SAFEGUARDS: RESULTS OF THE WORK PERFORMED

All the sectors of ABACC contributed to the satisfactory performance of the activities planned for 2010 in the nuclear installations of Brazil and Argentina. The databases that support the safeguards activities were updated and the equipment used by the inspectors was regularly tested and calibrated.

As in previous years, the inspections performed in 2010 allowed ABACC to guarantee that it continues to comply satisfactorily with the mission to apply the nuclear safeguards effectively and efficiently in the two countries.

INSPECTIONS CARRIED OUT

ABACC performed routine and ad hoc inspections in coordination with the International Atomic Energy Agency and with the collaboration and support of the national authorities.

The table in the following page presents the results of the work performed during the year:

not based on doubts but on the mutual confidence between two countries that are growing together in the nuclear energy sector.

José Mauro Esteves
Secretary of ABACC from December 2002 to June 2007

Type of inspection	Argentina	Brazil	Total
Physical Inventory Verification	29	18	47
Interim Inspections	26	18	44
Unannounced inspections	0	4	4
Design Information Questionnaire Verification	3	1	4
Total inspections	58	41	99
Inspection Effort (in inspector-day)	274	166	440
Availability (in inspector-day)	559	356	915

Presentation of the secretary of ABACC on the 8th of July 2011
in the Palacio San Martín, Buenos Aires

Main activities carried out in Argentina

ABACC and the IAEA performed the following joint inspections:

1 Short Notice Random Inspections and a Physical Inventory Verification inspection were performed at the Fábrica de Elementos Combustibles of Combustibles Nucleares Argentinos S.A. (CONUAR)

2 ABACC and the IAEA performed inspections that included the physical inventory verifications with respect to the monitoring of the domestic transfers of nuclear material produced at the Complejo Fabril Córdoba. At the end of the material balance period of this facility, quantities of nuclear materials in domestic transfers above 20% of the transferred total were verified, which complies with the safeguards criteria.

3 A Physical Inventory Verification inspection and a Design Inventory Verification inspection were performed at the Central Nuclear Atucha II. This was to confirm the information supplied by the Autoridad Regulatoria Nuclear in the Design Information Questionnaire and to monitor the progress of the works. In the Design Inventory Verification inspection, the reactor core was inspected before its sealing and the special safeguards measures to be applied during the commissioning were discussed and approved.

4 Three spent fuel transfer campaigns from the storage pool to the silos were performed at the Central Nuclear Embalse. This represented a large part of the inspection effort in Argentina.

5 The first inspection was performed in the Mock Up Laboratory. This area is the result of the separation of the former Planta de Enriquecimiento de Uranio in Pilcaniyeu into two facilities: the Mock Up Laboratory and the Planta Piloto de Enriquecimiento de Uranio. The inspectors verified that the modifications introduced into the facilities were consistent with those declared in the new Design Information Questionnaires. The changes to be introduced in the safeguard approach due to these modifications are under analysis.

Main activities conducted in Brazil

ABACC and the IAEA performed the following joint inspections:

1 Short Notice Random Inspections were performed at the Fábrica de Combustível Nuclear – Reconversão e Pastilhas/Componentes e Montagem das Indústrias Nucleares do Brasil. The Physical Inventory Verification inspection was also performed.

2 Unannounced inspections were performed at the enrichment plants of the Centro Experimental de Aramar (CEA) of the Centro Tecnológico da Marinha em São Paulo (CTMSP) and at the commercial enrichment plant of the Fábrica de Combustível Nuclear – Enriquecimento (FCN – Enriquecimento) of the Indústrias Nucleares do Brasil.

3 An special inspection was performed at the uranium enrichment facility of the FCN–Enriquecimento, with the objective of supervising a special transfer between UF_6 cylinders that was not forecast in the Design Information Questionnaire.

SUPPORT FOR THE INSPECTIONS

AT ABACC

The database of accounting records was updated with the information received from the Inventory Change Reports and from the Material Balance Reports and Physical Inventory Lists received from Argentina and Brazil. This information, after being compared with the data collected during the inspections performed during the period, was used each month to notify the national authorities and the IAEA of the accounting situation of the nuclear material balance areas of the two countries and to carry out pending corrections.

The EOSS (Electronic Optical Sealing System) seals were tested and approved by ABACC, which had already acquired the required quantity of seals for joint use with the IAEA. These seals will replace the VACOSS seals currently in use. ABACC also approved the new COBRA seals, received from the IAEA, for evaluation and training of the inspectors. These new seals have a more efficient authentication system and will replace the seals in use.

The ABACC computer network, at its headquarters and in the Buenos Aires office, was restructured to increase the security and the efficiency of the information management. This restructuring included the integration of the internal and external networks at the ABACC headquarters and a new electronic mail server was installed and configured.

The facilities of ABACC in Buenos Aires underwent a general review with the objective of increasing the security conditions of the equipment stored there and to provide better working conditions for the inspectors.

AT FACILITIES IN ARGENTINA

The following activities were conducted:

At the Central Nuclear Atucha I

The data storage system of the XVI Integrated Fuel Monitor was updated and the data recording system was exchanged from optical-magnetic disks to digital hard disks and USB storage units.

At the Central Nuclear Atucha II

ABACC acquired the equipment and accessories for the installation of the surveillance system of the storage pool of spent fuel elements in accordance with the project of the safeguards systems agreed between ABACC, the IAEA and the ARN.

At the Central Nuclear Embalse

Corrective maintenance was performed and the exchange of the detectors and electronic components of the XVI Integrated Fuel Monitor. Corrective maintenance was performed on the DMOS (Digital Multi-channel Optical Surveillance System).

View of the audience in the commemoration of the 20th anniversary of ABACC in the Palacio San Martín

AT FACILITIES IN BRAZIL

The following activities were conducted:

At the Centro Experimental de Aramar

Preventive and corrective maintenance of the germanium detectors;

Provisional installation of three cameras in the enrichment facilities, to operate simultaneously with the EMOSS (EURATOM Multi-Camera Optical Surveillance System).

At the facilities of FCN - Enriquecimento of INB

Preventive and corrective maintenance of the germanium detectors;

Corrective maintenance of the DMOS (Digital Multi-channel Optical Surveillance System) to repair the hard disks that store the images and the tape recorders;

Installation of two new cameras at the FCN - Enriquecimento, due to the entry into operation of new cascades;

Installation of cabling and accessories for the surveillance system to extend the coverage up to the cascade, which will initiate the commissioning stage.

At the Central Nuclear Angra 1

A new system of emergency lights was installed in the equipment hatch. This system will be used to reload fuel during the reactor shutdowns.

At the Central Nuclear Angra 2

Preventive and corrective maintenance was performed on the surveillance system, which included the exchange of surveillance cameras and a complete revision of the SDIS server (Surveillance Digital Imaging System).

Presentation of the Argentine Minister Héctor Timerman
in Palacio San Martín on the 8th of July 2011

NEW DEVELOPMENTS AND ADVANCES IN THE APPLICATION OF SAFEGUARDS

APPLICATION OF SAFEGUARDS IN URANIUM ENRICHMENT FACILITIES

At the meetings of the Technical Liaison Subcommittee and the Liaison Committee, it was decided that ABACC, the IAEA, Brazil and Argentina analyze, within the legal framework of the Quadripartite Agreement, safeguards measures that improve the verification of the nuclear material in the conversion plants of natural uranium. Accordingly, the parties created technical groups to present technical proposals to be applied in the conversion plants.

APPLICATION OF SAFEGUARDS IN URANIUM ENRICHMENT FACILITIES

At the Planta de Enriquecimento of the FCN – Enriquecimento of the Indústrias Nucleares do Brasil

The verification system of the masses contained in the UF_6 cylinders of the feed and withdrawal systems was approved by ABACC and by the IAEA and is being installed. This new system will allow for the independent verification by the agencies of the mass data supplied by the operator.

The system of verification by images in the cascades was tested by ABACC, the IAEA, the CNEN and the operator. Some suggestions for improvements in the authentication and efficiency, to be applied during the inspections, were accepted by all the parties and are being performed by the operator. Measures are being analyzed to obtain quicker results in the verification of the images during the inspections.

Because this plant is being assembled in stages, ABACC, in coordination with the IAEA, has been applying special procedures in the unannounced inspections and in the routine verifications, especially in the verification of the cascades of the centrifuges in commissioning. These procedures follow the protocols that were previously agreed between the parties.

At the Laboratório de Desenvolvimento de Elementos de Separação Isotópica

The IAEA proposed changes in the safeguards approach at this Laboratory, based on the new requirements of that agency for enrichment plants and laboratories. ABACC, the IAEA, the CNEN and the operator performed a technical analysis at the facility to verify the implications of these changes.

The representatives of the CNEN and the operator presented a counterproposal, which is being analyzed by ABACC and the IAEA. As a result of this analysis, it is expected that the agencies will propose alterations in the current safeguards approach.

At the Planta Piloto de Enriquecimiento de Uranio in Pilcaniyeu

ABACC and the IAEA are revising the safeguards approach at this facility to include the alterations supplied in the new Design Information Questionnaire received from the ARN, due to the division of the material balance area "MBA2: Process" and creation of the process test area named "Mock Up Laboratory". The operator is making the previously informed modifications, which are due to be completed in 2011. The "Mock Up Laboratory" can begin its operation after the approval of the new safeguards approach by the parties.

UNATTENDED SYSTEM FOR SPENT FUEL TRANSFERS AT THE CENTRAL NUCLEAR EMBALSE

The Autoridad Regulatoria Nuclear, ABACC and the IAEA are implementing an unattended system to monitor the spent fuel transfers to the silos. This project is subdivided into three subsystems and the responsibility of supply and maintenance is as follows:

Subsystem	Responsibility
Transfer between the pool and the welding cell	IAEA
Transfer from the welding cell to the silo	ABACC
Final storage in the silo	IAEA

The operator and the firm contracted to perform the assembly have already received the corresponding service orders. ABACC and the IAEA are preparing an installation schedule that will be submitted to the ARN and to the operator to obtain the required approvals. Due to the complexity of the installation of the Unattended System, the need to contract services that interfere in the operation of the center, and the various approvals that are required, the installation and the performance of system tests are forecast for 2011.

ABACC has already begun the project part of the Unattended System under its responsibility. This includes a neutron detector and a surveillance camera, which will be installed in the transport vehicle operating between the reactor building and the field of the storage silos.

TRANSMISSION OF THE STATE OF HEALTH OF SAFEGUARDS EQUIPMENT

In the meetings of the Liaison Committee, it was decided to perform a field transmission test of the state of health of safeguards equipment in certain specific surveillance systems in Argentina and in Brazil.

ABACC, in coordination with the IAEA, began the assembly of a prototype for remote transmission of the state of health of the surveillance equipment. The first monitoring tests will be performed on a surveillance system installed at ABACC. The prototype equipment will be supplied by the two agencies. After the tests at ABACC, the two countries will test the equipment.

To comply with the authentication requirements with respect to the common use of equipment, ABACC and the IAEA adopted a solution that allowed for the remote maintenance of the systems, directly from ABACC or from the IAEA. To achieve this, the communication requirements between the two agencies were defined.

Presentation of the Brazilian Ministry Antonio Patriota on the 8th of July in the Palacio San Martín, Buenos Aires

COORDINATION OF THE INSPECTION ACTIVITIES BETWEEN ABACC AND THE IAEA

Use of results obtained by ABACC

The IAEA is studying the possibility of using the results obtained by ABACC in some areas of joint work, which could be:

1. The results of the audit of the accounting records of the SJAR System, developed by ABACC;
2. The results of the destructive analysis performed in the laboratories of the Network of Laboratories that Support the Work of ABACC;
3. The conclusions of the preliminary analysis of the documents sent by the national authorities, such as the Design Information Questionnaires.

Procedures for the common use of equipment

The procedures for the application of the common use of equipment are still being negotiated between ABACC and the IAEA, although the requirements established in Policy Paper 20 of the IAEA continue to intervene in the new procedures.

These procedures continue to be an area requiring improvement. The Commission expressed its desire to continue advancing this topic.

NEW TECHNOLOGIES, EQUIPMENT AND DEVELOPMENTS FOR SAFEGUARDS

SAFEGUARDS SYSTEMS TO BE IMPLEMENTED AT THE CENTRAL NUCLEAR ATUCHA II

Technical visits were performed and meetings were held at the Central Nuclear Atucha II, with the participation of the ARN, the operator, ABACC and the IAEA. These involved the detailed analysis of the installation project of the safeguards systems and equipment to be installed in this facility. In particular, the installation of the XVI Integrated Fuel Monitor in the transfer channel and the surveillance system in the storage pools of spent fuel elements were discussed.

Presentation of the Director General of the International Atomic Energy Agency, Mr. Yukiya Amano in the Palacio San Martín, Buenos Aires, on the 8th of July 2011

The proposed technique developed by ABACC and the IAEA for the installation of the two systems will be modified to comply with the suggestions submitted by the ARN and by the operator. Accordingly, the technical specifications were submitted for the services that will remain the responsibility of the operator.

The mechanical assembly of the XVI Integrated Fuel Monitor could start as soon as the quotation for the services is approved. According to the operator, this could start in the first half of 2011.

SURVEILLANCE SYSTEM WITH A SHORT PICTURE TAKING INTERVAL

ABACC and the IAEA continue to procure alternative surveillance systems that comply with the requirement of having a short picture taking interval to replace the EMOSS (EURATOM Multi-Camera Optical Surveillance System), installed in the enrichment plants of the Centro Experimental de Aramar, because the manufacture and support have been discontinued by the manufacturer.

ABACC, in cooperation with Sandia National Laboratories of the US Department of Energy, developed a surveillance system, named "Secure Video Surveillance System", which uses components that are available in the market. ABACC has already received the first two units of this system. The performance tests included the participation of representatives from Sandia National Laboratories. Other tests are being planned to take place at the ABACC headquarters as well as field tests. ABACC has kept the IAEA informed about the progress in the development of this system and will send the IAEA a unit for tests.

NEW SURVEILLANCE SYSTEM WITH AUTHENTICATION GUARANTEE

The IAEA is developing a surveillance system with cameras and a picture storage system, named the "Next Generation Surveillance System". Its technical characteristics will provide the guarantee that the electronic circuit boards cannot be altered, as well as having an authentication system with higher security levels than the surveillance systems in operation. The preference is that this new system substitutes the systems in use because it already complies with the requirements of Policy Paper 20, of the IAEA, and has more advanced technological characteristics.

The IAEA sent a surveillance camera of this new system, named XCAM, for evaluation and tests by ABACC. ABACC will receive other units and will perform tests for approval and application in safeguards in the facilities of the two countries.

NEW METHODOLOGIES AND EQUIPMENT

Non-destructive assay

ABACC continues the evaluation and to seek improvements in the non-destructive assay equipment, including the updating of the software used.

ABACC received a new system, named "Inspector 2000", which performs the counting with both, a gamma detector and a neutron detector. This equipment has already been approved by the IAEA and tested by ABACC, which plans to acquire, in 2011, the quantity required for the common use in the inspections.

ABACC-Cristallini Method

ABACC finalized the evaluation of the test results of the "ABACC-Cristallini Method", a UF_6 sampling method, based on the adsorption capacity in alumina pellets. This method replaced very advantageously, with less cost and number of rejects, the traditional technique of sampling with ASTM ampoules. ABACC has been monitoring the approval of this method with the IAEA and the American Society for Testing and Materials.

MANAGEMENT OF THE QUADRIPARTITE AGREEMENT AND OF THE COMMON SYSTEM FOR THE ACCOUNTING AND CONTROL OF NUCLEAR MATERIALS

The management of the Quadripartite Agreement and of the Common System for the Accounting and Control of Nuclear Materials requires that technical and coordination meetings are held between the Parties. The nature of the considered topics defines which parties of the Agreement will participate. There are two instances in which all the Parties of the Quadripartite Agreement participate: the liaison subcommittee meeting and the liaison committee meeting.

COORDINATION MEETINGS OF THE ACTIVITIES BETWEEN ABACC AND THE NATIONAL AUTHORITIES

In these meetings, the technical and operational aspects of the application of safeguards in Argentina and Brazil are discussed. The debated subjects include, among others:

- Update of the operating data of the nuclear facilities under safeguards, required for the planning and programming of the inspections;
- Application of safeguards, through procedures or equipment, in all the facilities.

COORDINATION MEETINGS OF THE ACTIVITIES BETWEEN ABACC AND THE IAEA

In these meetings, several managerial matters are discussed, of which we mention:

- Coordination of the communication between ABACC and the IAEA, with reference to the inspection activities;
- Update of the procedures in use, such as the 'Common Use of Equipment', the 'Joint Inspection Procedures' and the 'Shared Acquisition of Equipment';
- Monitoring and review of several activities in progress;
- Development of new techniques, processes and equipment;
- Establishment of new coordination targets;
- Measures to increase the collaboration in the activities of maintenance and the use and approval of safeguards equipment, mainly seeking a greater interaction between the technical support sectors of the two agencies;

Participants of the 2011 ESARDA meeting and the secretary of ABACC

The president of the 2011 ESARDA Meeting greets the secretary of ABACC

JOINT MEETINGS WITH THE NATIONAL AUTHORITIES AND THE IAEA

In March, the 12th Liaison Subcommittee Meeting was held between the CNEN, the ARN, ABACC and the IAEA. One of the main objectives was the preparation for the 11th Liaison Committee Meeting of the Quadripartite Agreement, held in November, at the headquarters of the Autoridad Regulatoria Nuclear. After the discussions, the parties concluded that since the last meeting, there had been progress in the implementation of the Quadripartite Agreement.

In November, the 14th Meeting for the Negotiation of Design Information Questionnaires and of the Facility Attachments was held at the ABACC headquarters, with the participation of representatives from ABACC, the CNEN and the IAEA.

At the end of the meeting, Argentina and Brazil presented updated information about their nuclear programs and the cooperation existing in the nuclear area between the two countries.

SITUATION OF THE DESIGN INFORMATION QUESTIONNAIRES AND THE FACILITY ATTACHMENTS

Whenever there is any modification in the project of the facility under safeguards or there is a need to alter previously declared information, the Design Information Questionnaires and the Facility Attachments are updated. These are the working papers of the inspectors during the inspections.

ABACC and/or the IAEA request these updates based on information obtained during the inspections. Once the update is requested from the national authorities, the next step is the analysis by the Agencies of the submitted revisions.

This year, 16 Design Information Questionnaires from Argentine facilities and 8 Design Information Questionnaires from Brazilian facilities were updated or revised.

A the end of the year, 26 Facility Attachments from Argentine facilities were in force, 9 were in the negotiation stage and 6 were in the preparation stage. 12 Facility Attachments from Brazilian facilities were in force, 8 were in the negotiation stage and 4 were in the preparation stage.

The Argentine facility "Daño por Irradiación" was withdrawn from the list of the facilities under safeguards because it had no nuclear material and was decommissioned.

The secretary of ABACC receives the *Special Service Award* in the 2011 Annual Meeting of the Institute of Nuclear Materials Management

Staff and secretary of ABACC with Argentine and Brazilian participants of the 2011 Institute of Nuclear Materials Management Annual Meeting

PARTICIPATION IN EVENTS

The participation in events in the area of safeguards and non-proliferation allows the technical body of ABACC to follow the developments and the stage of advances obtained in the technologies and projects of interest. It is also an opportunity to discuss technical questions of common interest with peers.

At the same time, when they present papers, they can disclose the technological developments obtained in the projects developed with the collaboration of the national authorities of Argentina and Brazil and in the technical cooperation projects.

Certain events deserve to be mentioned in this year's activities. One of the main events was the 2010 NPT Review Conference in which ABACC had a significant participation, with a presentation in a plenary session and a specific presentation to previously chosen countries, including members of the Nuclear Suppliers Group.

Another important event was the invitation for ABACC to participate, as a consultant, in the meeting of the International Target Value to establish and review the standard-values for the measurements of non-destructive tests and destructive tests for international use.

Two events, considered as important forums for the area of safeguards and non-proliferation, are the annual congresses of the Institute of Nuclear Material Management – INMM and the meetings of the European Safeguards Research and Development Association – ESARDA, in which ABACC always has an active role. This year, ABACC participated as an observer in three ESARDA work groups: Integrated Safeguards, Containment and Surveillance, and Non-Destructive Assay. At the congress of the Institute of Nuclear Material Management, ABACC presented the paper "Regional Safeguards Systems: Contributions and Perspectives for Future Safeguards Implementation" and was invited to act as a moderator in two sections of the event.

At the invitation from the US Department of Energy, officials from ABACC participated in two events: the International Workshop on Containment & Surveillance: Concepts for the 21st Century and the Third International Meeting on Next Generation Safeguards – Safeguards by Design.

This year, ABACC organized an international meeting: the ABACC Technical Meeting on Containment and Surveillance Systems Technologies for Safeguards Applications. Specialists in containment and surveillance technologies and systems from the United States, Japan, Brazil, Argentina, the IAEA and EURATOM participated.

STRENGTHENING TECHNICAL DEVELOPMENT

The development of the inspectors and officials of ABACC is one of the most important activities in the annual planning of the Agency. Accordingly, the Secretary prepared the Multi-annual Plan of Development and Training, which was the base to develop the 2010 Operational Plan of Training and Development.

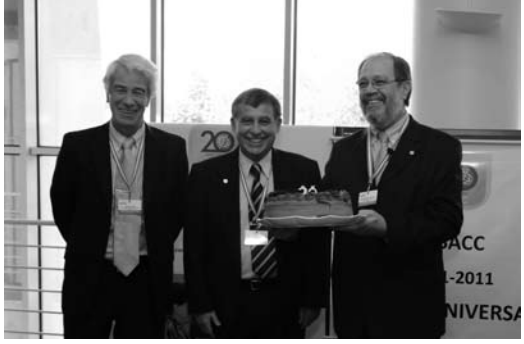
In the planning and implementation of the Operational Plan, certain fundamental guidelines are followed. One of them is to offer courses in Argentina and in Brazil, favoring the participation of the inspectors of the two countries; another guideline is that the courses provide an emphasis both on the theory and the practice, guaranteeing with this the satisfactory results of the inspections. As well as the laboratories of the Network of Laboratories that Support the Work of ABACC, the laboratories and the facilities of the following institutions were also used during the year: Autoridad Regulatoria Nuclear, Comisión Nacional de Energía Atómica, Instituto de Radioproteção e Dosimetria and the Instituto de Pesquisas Energéticas e Nucleares, both of the Comissão Nacional de Energia Nuclear, Indústrias Nucleares do Brasil, and the Centro Tecnológico da Marinha em São Paulo.

Specialists from several institutions, from Brazil and abroad, contribute to the success of the courses and the development of the participants. Among the institutions that most collaborate with ABACC are the Comissão Nacional de Energia Nuclear, Centro Tecnológico da Marinha em São Paulo, FCN-Enriquecimento of INB and the Oak Ridge National Laboratory.

This year, the courses on offer were distributed in accordance with the following table:

Course	Location	Destined for	No of participants
Containment and Surveillance	Buenos Aires	Argentine Inspectors	11 Inspectors
Joint Audit ABACC-IAEA of Accounting Records (SJAR)	São Paulo	Argentine Inspectors	16 Inspectors
Joint Audit ABACC-IAEA of Accounting Records (SJAR)	Rio de Janeiro	Brazilian Inspectors	11 Inspectors
Joint Audit ABACC-IAEA of Accounting Records (SJAR)	Buenos Aires	Brazilian Inspectors	7 Inspectors
Unannounced Inspections to Enrichment Facilities in Brazil	Rio de Janeiro and Resende	Argentine Inspectors and from the IAEA	4 Argentine inspectors and 3 from the IAEA
Containment and Surveillance	Rio de Janeiro	Brazilian Inspectors	8 Inspectors

As well as these courses, routine individual training was offered to Argentine and Brazilian inspectors, in the use of techniques of non-destructive analysis for the verification of nuclear materials in safeguards inspections.



TECHNICAL COOPERATION

WITH THE AUTORIDAD REGULATORIA NUCLEAR

Specific Agreement no. 3 was signed between ABACC and the ARN, which dealt with the "Information Technology Support to ABACC facilities in Rio de Janeiro". Through this Agreement, ABACC received equipment to improve the security of its digital network, allowing the secure transmission of data between the ABACC headquarters and its office in Buenos Aires.

WITH THE US DEPARTMENT OF ENERGY

Projects in progress

ACTION PROJECT 20

Investigation of Combined Measurements with Three-Dimensional Design Information Verification System and Gamma-Ray Imaging Systems for International Safeguards Applications

OBJECTIVE:

Combine 3D Laser measurements and gamma spectrometry to detect the presence of nuclear materials in pipes and accessories of the facilities through the obtained three-dimensional images and gamma radiation profiles.

The developed system achieved compatible dimensions with the applications in the field and the integration of the 3D Laser with the gamma detector was performed successfully.

Commemoration of the 20 anniversary of ABACC
in the 2011 ESARDA Annual Meeting

Panels of the commemoration of the 20th
anniversary of ABACC

ACTION PROJECT 21

Laboratory Quality Assurance Through Analytical Standards and Samples Exchange Programs

OBJECTIVE:

Maintenance of the quality of the laboratories that support the work of ABACC through the analysis of analytical standards for inter-comparison of results.

Two specialists, one from the New Brunswick Laboratory and one from the National Institute of Standards and Technology visited several Brazilian and Argentine laboratories to discuss the results obtained in the inter-comparison exercises of the last three years.

A meeting was also held between the New Brunswick Laboratory, the ARN, ABACC and the CNEA to analyze the activities for the certification of the process of withdrawal of the UF_6 samples in enrichment plants by adsorption with alumina – named the ABACC-Cristallini method. The New Brunswick Laboratory offered support to ABACC for the certification of the process with the American Society for Testing and Materials.

A meeting was held at the ABACC headquarters between the Oak Ridge National Laboratory and ABACC, to analyze the modernization of special instruments used for NDA measurements, developed specifically for enrichment plants. ABACC, within the scope of the cooperation program with the US Department of Energy, received new equipment that will be used in NDA measurements.

Participants of the Annual Meeting of the Institute of Nuclear Materials Management in the commemoration of ABACC

Speech of the secretary of ABACC in the Annual meeting of the Institute of Nuclear Materials Management

New projects

ACTION PROJECT 22

Cooperation on Developing a Spent Fuel Gross Defect Detection System at ATUCHA-I

OBJECTIVE:

Develop a system of non-destructive measurements, easily operated by the inspectors, capable of detecting, by gross defects, the presence of spent fuel at Atucha I, stored in the pool, in case of the need to re-verify the stored fuel.

ACTION PROJECT 23

Cooperation on Training for ABACC

OBJECTIVE:

Train ABACC inspectors and specialists in the areas of non-destructive testing, containment and surveillance and destructive testing, in order to increase the efficiency and the effectiveness of ABACC in the implementation of the safeguards in Brazil and in Argentina.

ACTION PROJECT 24

Developing a System for ABACC to Function as a Regional Center for Education and Training on Safeguards

OBJECTIVE:

Examine the general requirements of ABACC to develop it into being a center for training in safeguards for South America. The project will allow for the regional cooperation in the areas of education and training for a new generation of specialists in safeguards.

ACTION PROJECT 25

Secure Remote Access for ABACC

OBJECTIVE:

Develop and install tools that are capable of assuring greater protection and confidence in the communications made between the ABACC inspectors in the field, using laptops, and the computers installed in the ABACC headquarters and in the office in Buenos Aires.

The significance of ABACC is not limited to a simple verification of nuclear material. More than this, it is an instrument without which the consolidation of the relationships between Brazil and Argentina and within the ambit of our entire region would have been impossible. Both countries have made available their best human resources in the nuclear area to ABACC. This assures the professional excellence that Argentina and Brazil are so proud of and which

INSTITUTIONAL OPERATIONS

The beginning of the year was marked by the visit of the Director General of the International Atomic Energy Agency, Yukiya Amano. Also present from the IAEA were Rafael Grossi, cabinet chief of the director general and Marco Marzo, director of the Operation A Division of the Safeguards Department. The Ambassador Antonio Vallim Guerreiro, chief of the permanent mission of Brazil with IAEA, and the Minister Santiago Irazabal Mourão, director of the European Department, represented the Brazilian Foreign Ministry. The group members were received by the ABACC Secretaries and officers and took the opportunity to visit the ABACC laboratories. The visit reinforced the cooperative ties between the two agencies.

The "2010 NPT Review Conference", held in New York in May, included the participation of the ABACC Secretary and Deputy Secretary. The secretary made a presentation, in a parallel event, organized by the representatives of Argentina and Brazil. This had a large audience and indicated the interest of the participants in matters relating to ABACC. The deputy secretary presented a statement in a plenary meeting, which highlighted the unique ABACC model and the atmosphere of mutual trust existing between Argentina and Brazil.

is fully recognized by the international community. ABACC is a unique experiment but can serve as an inspiration for other contexts to underline the commitment with the exclusively peaceful use of nuclear energy.

Ambassador Antonio José Vallim Guerreiro
Permanent Representative of Brazil to the IAEA

The Ambassador Gioconda Ubeda, secretary general of the Organismo para la Proscripción de las Armas Nucleares en la América Latina y Caribe – OPANAL, visited ABACC in October. The opportunity was taken to discuss projects to be developed jointly.

In December, Dr. Sueo Machi, ex-director of IAEA and the current senior adviser of the Japan Atomic Energy Agency visited ABACC, accompanied by the Consul General of Japan in Rio de Janeiro.

Three academic studies were developed in 2010 with subjects relating to ABACC. Substantial documentation about ABACC was supplied to the students. These studies were developed for the Columbia University and London School of Economics, in a master program and for the Naval Post Graduate School. The third study, developed for the Work Group of Non-Proliferation and Nuclear Disarmament of the Global Consortium on Security Transformation was prepared by a professor, at the Universidade Estadual Paulista "Júlio de Mesquita Filho" - UNESP, in Marília, Brazil.

ABACC gave its support to two relevant events: the Exposição Energia Nuclear, promoted by the Casa da Ciência da Universidade Federal do Rio de Janeiro in partnership with the Comissão Nacional de Energia Nuclear, and the Simpósio da Seção Latino-americana da American Nuclear Society, both of which were held in Rio de Janeiro.

"In legal terms, ABACC's establishment was the culmination of an approximation process that started with the Foz de Iguaçu Joint Declaration on Nuclear Policy, adopted in 1985 by the then newly-restored democratic regimes in Argentina and Brazil. At the same time, it

ADMINISTRATIVE AND FINANCIAL OPERATIONS

The administration of the financial contributions of the two governments during the 2010 financial year allowed for the satisfactory fulfillment of the institutional operations, having adjusted the budget approved by the Commission and the applicable standards.

The appreciation of the Brazilian Real against the Dollar during the period produced an increase in expenses in the Brazilian currency, resulting in a loss in purchasing power. The austerity measures and the optimization of the budgetary resources helped to mitigate this problem.

The financial summary indicates that the budget was almost completely used and that the assets of the institution were not significantly altered. For operational reasons, only 50% of the forecast investments were applied to capital goods. The other 50% had to be postponed. The local currency expenses exceeded the budgetary forecast by approximately 7%, due exclusively to inflation. These results were communicated to the Commission in the meetings held.

The internal controls and the constant supervision of the Secretaries in the administrative and financial operations produced a balance sheet and results that were approved by the auditors who annually examine the accounting and financial operations of the institution.

was the starting point for the consolidation of our strategic bilateral relationship in a fundamental area of international security".

Joint article by Chancellor Héctor Timerman, of Argentina, and Minister Antonio Patriota, of Brazil published on the occasion of the commemoration of the 20th anniversary of ABACC, July 2011.

Unforeseen additional financial resources were used in the digitalization of documents which ABACC had accumulated over the last 20 years, because of the impossibility of destroying them and the lack of storage space.

Finally, it is noteworthy to highlight the genuine "zero growth" of ABACC in terms of personnel, which it has maintained for 15 years, and an updated budget that has not compensated for the effects of inflation and unfavorable exchange rates.

With the continued increase in ABACC's operations over many years and the "zero growth", the achieved excellent results can only be explained by the increase in the operational efficiency of the Agency.

STATEMENT OF ACCOUNT FOR THE FINANCIAL YEAR
On December 31th 2010

(In US$))

REVENUES	**3.961.700,00**
Contribution from the Governments of Argentina and Brazil	3.961.700,00
EXPENDITURES	**3.860.329,87**
Budgetary Expenditures	3.624.610,15
Human Resources	2.308.176,79
Inspections	298.502,68
Technical Support	285.558,19
Accountability of Nuclear Materials	1.000,92
Planning and Evaluation	3.818,28
Coordination for the Application of safeguards and Implementation of the Quadripartite Agreement	97.494,74
Training	35.259,15
Computer Resources	39.579,21
Technical Cooperation	6.697,69
Institutional Relations	82.802,20
Operational & Infrastructure Expenditures	495.427,33
Balance of Financial Transactions	-29.707,03
Depreciation over the Financial Year	**235.719,72**
SUPERAVIT OF THE FINANCIAL YEAR	**101.370,13**
INVESTMENTS	**324.489,43**
Acquisition of equipment and instruments	324.489,43
TOTAL ASSETS	**3.614.599,59**
Current Asset	2.877.827,64
Available	2.675.610,01
Receivables	68.956,18
Other Assets	133.261,45
Non-current Assets	736.771,95
TOTAL LIABILITIES	**3.614.599,59**
Account pay-able	270.006,68
Net capital Stock	3.344.592,91
Surplus from Previous Financial Year	3.243.222,78
Surplus of 2010 Financial Year	101.370,13

Through the 1980 agreement between Argentina and Brazil on the peaceful uses of nuclear energy, subsequent agreements accompanying the return of your countries to democracy, and finally the creation of ABACC in 1991, you opted for transparency and cooperation rather than suspicion and

PERSPECTIVES FOR 2011

ABACC will continue with the verification work of the nuclear facilities of Argentina, highlighting the continuation of the installation of the unattended system to monitor the spent fuel transfers to the silos at the Central Nuclear Embalse, the installation and operation of the safeguards systems of the Central Nuclear Atucha II, which is due to be commissioned in 2011, and the negotiation of the safeguards approach for the Mock Up Laboratory.

It will also continue with the verification of the nuclear facilities in Brazil, highlighting the application of the safeguards approach of the Usina de Enriquecimento de Urânio of the INB. This activity will involve investment in equipment and an increase in the inspection effort when the new cascades begin to operate. With respect to the safeguards in conversion plants, the safeguards approach, capable of being implemented in the facilities of Argentina and Brazil, will continue to be negotiated.

With reference to the technical evolution in the safeguards area, the Secretary of the ABACC is mindful of the new developments that may occur in the international scenario, continually seeking to update and refine its work. For 2011, some projects in the area of technical cooperation, such as those of new technologies for enrichment plants, and projects of surveillance systems with special requirements of authentication, will present challenges.

competition. This was an imaginative and courageous step, which required determination and vision from both governments. That courage has been rewarded. ABACC has been a great success and the IAEA is proud to be your partner.

Yukiya Amano
Director General of the International Atomic Energy Agency

Among other activities to be developed in 2011, the 20 year commemoration of ABACC deserves emphasis and will merit special attention during the year.

ABACC will continue its verification work for the exclusively peaceful use of nuclear energy in Argentina and Brazil, disseminating the non-proliferation policy adopted by the two countries.

INSPECTORES

Inspectores Argentinos

INSPETORES

Inspetores Argentinos

INSPECTORS

Argentine Inspectors

INSPECTORES CONSULTORES

INSPETORES CONSULTORES

SENIOR TECHNICAL INSPECTORS

INSPECTORES

Inspectores Brasileños

INSPETORES

Inspetores Brasileiros

INSPECTORS

Brazilian Inspectors

INSPECTORES CONSULTORES

INSPETORES CONSULTORES

SENIOR TECHNICAL INSPECTORS

Adrián Claudio Pérez
Aldo Ernesto Pérez
Analía Saavedra
Aníbal Damián Coppo
Beatriz Norma Gregori
Carlos Alberto Moreno
Carlos Alberto Rojas
Carlos Daniel Llacer
Carlos Darío Fernández
Carlos Eduardo Rodríguez
Christian Fabián Elechosa
Daniel Ángel Geraci
Darío Osvaldo Colombo
Dora Norma Vidal
Enrique Cinat
Erwin Gaspar Galdoz
Fabián Alberto Saule
Flavio Alejandro Andrada Contardi
Gustavo Alfredo Bustos
Horacio Lee Gonzales
Hugo Edgardo Vicens
Hugo Luis Rey
Juan Ángel Cruzate
Juan Marcos Ferro
Laura Beatriz Castro
Leonardo Ariel Pardo
Leonardo Gustavo Barenghi
Liliana Inés De Lio
Luis Alberto Giordano
Luis Alfredo Rovere
Marcelo Rojo
María Carolina Bianchi
Mauricio Guillermo Bachoer
Nancy Mabel Capadona
Néstor Daniel Mosquera
Norberto Ariel Novello
Norberto José Bruno
Osvaldo Alberto Calzetta Larrieu
Pablo Carlos Florido
Pablo Román Cristini
Patricia Susana Arrigoni
Sergio Adrián Menossi
Stella Maris Bonet Durán
Susana Beatriz Papadópulos
Thais Hernández Sánchez
Walter Adrián Truppa

Alfredo Lucio Biaggio
Aníbal Bonino
Antonio Abel Oliveira
Elena Maceiras
Elías Palacios
Osvaldo Alberto Cristallini
Sonia Fernández Moreno

André Luís Nunes Barbosa
Celia Christiani Paschoa Portoghese
Cláudio Luiz de Oliveira
Cleber Lopes de Oliveira
Cyro Teiti Enokihara
Dilmar Araújo Junior
Dulce Maria Daher
Fábio Cordeiro Dias
Florentino Menchero Palacio
Francisco José de Oliveira Ferreira
Geraldo Renha Junior
Gevaldo Lisboa de Almeida
Hebe Peixoto Schirmmer
Irineu do Amaral Gurgel Filho
Ivan José Tomazelli
Ivan Santos
João Batista Borges
Jorge Eduardo Silva Cardoso Santos
José Afonso Barros Filho
José Augusto Perrotta
José Cláudio Pedrosa
José da Silva Guimarães
José Gláucio Motta Garone
José Henrique Buchmann
José Roberto Tavares de Paiva
José Wanderley Santana da Silva
Leonardo Souza Dunley
Lilia Crissiuma Palhares
Luiz Antônio da Silva
Luiz Antônio de Mello
Marcos Sodré Grund
Maria Clarisse Lobo Iskin
Max Teixeira Facchinetti
Miriam Dias Pacheco
Olga Y. Mafra Guidicini
Orpet José Marques Peixoto
Pedro Dionísio de Barros
Ricardo Gonçalves Gomide
Sergio Barros Paixão
Silvio Gonçalves de Almeida
Walter Pereira
Willians Roberto Baldo

Bernardino Pontes
Carlos Feu Alvim
Fernando da Costa Magalhães
Francisco de Assis Brandão
Laércio Antônio Vinhas

Instalaciones Argentinas
sujetas al Acuerdo
Cuatripartito

(Diciembre 2010)

Instalações Argentinas
sujeitas ao Acordo
Quadripartite

(Dezembro 2010)

Argentine facilities under
the Quadripartite
Agreement

(December 2010)

- Bunker de Almacenamiento
- Central Nuclear Atucha I
- Central Nuclear Atucha II
  (En constructión) (Em construção) (Under construction)
- Central Nuclear Embalse
- Circuito Experimental de Alta Presión
- Circuito Experimental de Baja Presión
- Departamento de Instrumentación y Control
- Depósito Central de Material Fisionable Especial
- Depósito Central de Material Fisionable Especial Irradiado
- Depósito de Material Nuclear
- División Productos de Fisión
- División Materiales Nucleares
- Fábrica de Elementos Combustibles Nucleares
- Fábrica de Elementos Combustibles - Reactores de Investigación
- Facilidad de Almacenamiento de Combustibles Irradiados de Reactores de Investigación
- Facilidad Experimental de Conversión por Vía Seca
- Laboratorio Alfa
- Laboratorio de Química Analítica en Medios Activos
- Laboratorio de Física Nuclear
- Laboratorios de la Gerencia de Química
- Laboratorio de Nanoestructura
- Laboratorio de Química Analítica
- Laboratorio de Recuperación Uranio Enriquecido
- Laboratorio de Salvaguardias
- Laboratorio Facilidad Radioquímica
- Laboratorio Materiales Fabricación Aleaciones Especiales
- Laboratorio para Ensayos Post-Irradiación
- Laboratorio Mock-up
- Laboratorio Triple Altura
- Material Nuclear en Usos No Nucleares
- Planta de Conversión a Hexafluoruro de Uranio
- Planta de Conversión a UO2
- Planta Piloto de Enriquecimiento de Uranio
  MBA 1: almacenamiento
  MBA 2: proceso
- Planta de Fabricación de Elementos Combustibles para Reactores de Investigación
- Planta Experimental de Materiales Combustibles y Pulvimetalurgia
- Planta de Fabricación de Polvos de Uranio
- Reactor Argentino 0
- Reactor Argentino I
- Reactor Argentino 4
- Reactor Argentino 6
- Reactor Argentino 8
- Reactor Argentino 3
- Tecnología Nuclear Innovativa

Instalaciones Brasileñas
sujetas al Acuerdo
Cuatripartito

(Diciembre 2010)

Instalações Brasileiras
sujeitas ao Acordo
Quadripartite

(Dezembro 2010)

Brazilian facilities under
the Quadripartite
Agreement

(December 2010)

Arranjo Grafite-Urânio Subcrítico

Armazenagem ARAMAR
- MBA1 – Estocagem
- MBA2 – Transferência Gasosa

Central Nuclear Almirante Álvaro Alberto – Unidade 1

Central Nuclear Almirante Álvaro Alberto – Unidade 2

Central Nuclear Almirante Álvaro Alberto – Unidade 3
(En construction) (Em construção) (Under construction)

Coordenadoria de Desenvolvimento e Tecnologia de Combustíveis (IPEN-CNEN/SP)

Fábrica de Combustível Nuclear - Enriquecimento
- MBA1 – Estocagem
- MBA2 – Processo

Fábrica de Combustível Nuclear – Reconversão e Pastilhas / Componentes e Montagem

Laboratório de Desenvolvimento de Elementos de Separação Isotópica
- MBA1 – Estocagem, Purificação e Transferência, Tratamento de rejeito
- MBA2 – Laboratórios
- MBA3 – Processo

Laboratório de Desenvolvimento de Instrumentação e Combustível Nuclear

Laboratório de Enriquecimento Isotópico da Unidade de Enriquecimento Almirante Álvaro Alberto

Laboratório de Espectroscopia a Laser
- MBA1 – Estocagem, Laboratórios
- MBA2 – Processo

Laboratório de Geração Núcleo-elétrica

Laboratório de Materiais e Combustível Nuclear – (CDTN/CNEN-MG)

Laboratório de Materiais Nucleares

Laboratório de Salvaguardas

Planta Piloto de Enriquecimento de Urânio
- MBA1 – Estocagem
- MBA2 – Processo

Projeto Reprocessamento (IPEN-CNEN/SP)

Reator Argonauta (IEN/CNEN-RJ)

Reator IEA-R1

Reator IPR-R1

Subcrítica Universidade Federal de Pernambuco

Unidade Crítica IPEN/MB-01

Unidade de Produção de Hexafluoreto de Urânio

Reactor Argentino 0

Reactor Argentino 1

Reactor Argentino 4

Reactor Argentino 6

Reactor Argentino 8

Reactor Argentino 3

Tecnología Nuclear Innovativa

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Agência Brasileiro-Argentina de Contabilidade e Controle de Materiais Nucleares
Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials

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