

## **INTRODUCTION TO THE JOINT CONVENTION ON THE SAFETY OF SPENT FUEL MANAGEMENT AND ON THE SAFETY OF RADIOACTIVE WASTE MANAGEMENT AND CANADA'S PARTICIPATION**

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### **ABSTRACT**

The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (Joint Convention) is the first and the only legally binding international instrument to address safety issues concerning the management of spent fuel and radioactive waste on a global scale. It entered into force on June 18, 2001. The Government of Canada strongly supported international efforts to bring into force the Joint Convention and was the second country to ratify it.

The Joint Convention is an "incentive instrument" that is based on peer review (similar in that respect to the *Convention on Nuclear Safety*) and devised to encourage countries that are Contracting Parties to report and to foster open and frank discussions on the safety of spent fuel and radioactive waste management. Being an incentive convention, it is not designed to mandate Contracting Parties to fulfill its obligation through control and sanction, but it is based on the common objectives of Contracting Parties to achieve and maintain a high level of safety in spent fuel and radioactive waste management, protect individuals, society and the environment from ionizing radiation and prevent accidents and if necessary mitigating the consequences of such accidents.

The following paper will provide an introduction to the Joint Convention and provide a summary of Canada's peer review at the most recent Review Meeting which was held on May 11-20, 2009, at the International Atomic Energy Agency (IAEA) headquarters in Vienna, Austria.

### **1.0. INTRODUCTION**

The Joint Convention is the first and the only legally binding international instrument to address safety issues concerning the management of spent fuel and radioactive waste on a global scale. It entered into force on June 18, 2001, when twenty-five countries (Contracting Parties) ratified and deposited instruments of ratification with the IAEA. The Government of Canada strongly supported international efforts to bring into force the Joint Convention and was the second country to ratify it.

The Joint Convention is an "incentive instrument" that is based on peer review (similar in that respect to the *Convention on Nuclear Safety*) and devised to encourage countries that are Contracting Parties to report and to foster open and frank discussions on the safety of spent fuel and radioactive waste management. Being an incentive convention, it is not designed to mandate Contracting Parties to fulfill its obligation through control and sanction, but it is based on the common objectives of Contracting Parties to achieve and maintain a high level of safety in spent fuel and radioactive waste management, protect individuals, society and the environment from ionizing radiation and prevent accidents and if necessary mitigating the consequences of such accidents.

The Contracting Parties to the Joint Convention intend to achieve these objectives through international cooperation, peer reviews of each other's performance, assistance when needed for Contracting Parties with less developed programs and capabilities, and the use of internationally accepted standards of safety and/or best practices.

The articles of the Joint Convention oblige Contracting Parties to submit National Reports on the implementation of their obligations and subject Contracting Parties to a peer review at periodic Meetings. The articles of the Joint Convention call for a Review Meeting to be held at periods not exceeding three years. At the Review Meetings, Contracting Parties present their National Report, answer questions from the other Contracting Parties and at the end a the Rapporteur's report is produced summarizing the highlights, progress made since the last Review Meeting and areas for improvement identified by the other Contracting Parties. These peer reviews help each Contracting Party to achieve a high-level of safety in their countries management of spent fuel and radioactive waste.

## **2.0. CONTRACTING PARTIES TO THE JOINT CONVENTION**

As of April 1, 2011, there were 58 Contracting Parties [1] who have ratified the Joint Convention namely:

Argentina, Australia, Austria, Belarus, Belgium, Brazil, Bulgaria, Canada, China, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Euratom, Finland, France, Gabon, Georgia, Germany, Greece, Hungary, Iceland, Indonesia, Ireland, Italy, Japan, Kazakhstan, Republic of Korea, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Montenegro, Morocco, Netherlands, Nigeria, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, Senegal, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Tajikistan, the Former Yug. Rep. of Macedonia, Ukraine, United Arabs Emirates, United Kingdom, the United States of America, Uruguay and Uzbekistan.

Most countries with operating nuclear power plants are now Contracting Parties of the Joint Convention. Governments of IAEA Member States and those organizations whose activities are relevant to the subject matter are invited to become Contracting Parties to the Joint Convention. However, every country has some form of radioactive waste this is why it is very important that each country ratify the Joint Convention.

## **3.0. CANADA'S OBLIGATIONS**

Canada was one of the first countries to ratify the Joint Convention. The Canadian Nuclear Safety Commission (CNSC) has been delegated the responsibility on behalf of the Government of Canada to coordinate Canada's participation in the Joint Convention. Being a Contracting Party to the Joint Convention places a number of obligations on Canada, specifically;

1. to prepare and submit a National Report on the implementation of Canada's obligations under the Articles of the Joint Convention for peer review by other Contracting Parties;
2. to peer review a selection of National Reports of other Contracting Parties;
3. to pose questions accordingly; and to respond to the questions posed to Canada by other Contracting Parties; and
4. to participate actively in any other activities, such as the Open-Ended Working Group and the Plenary Sessions, which may bring changes to the Review Process, Rules of Procedures or the contents of the National Reports.

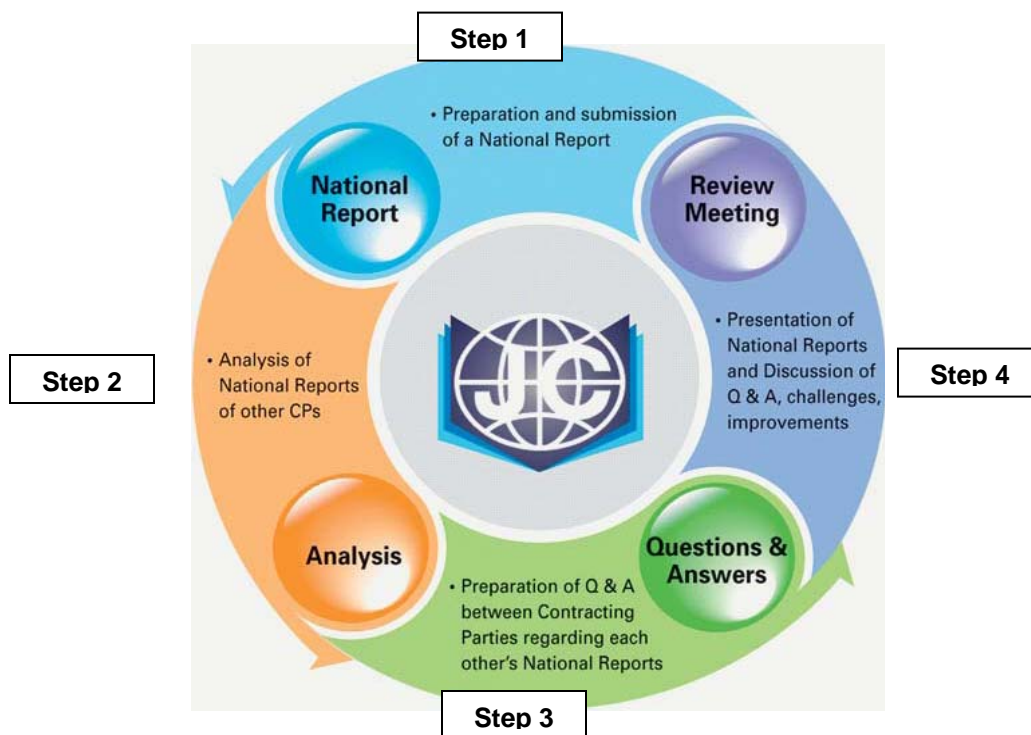


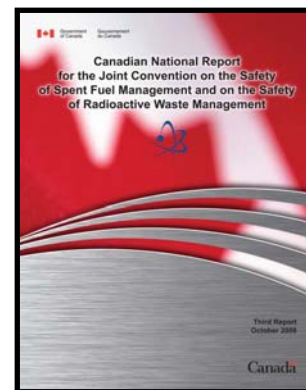
Figure 1: Summary of the peer review process for the Joint Convention.

*Image courtesy of IAEA*

### **Step 1 - Preparation of Canada's National Report**

Every three years, Canada is obligated to submit a National Report describing program and measures that it has put in place to fulfill its obligations under the Joint Convention and must actively participate in a peer review meeting. Canada has an inclusive approach to preparation of its National Report and participation in the Joint Convention Review Meetings.

The writing of Canada's National Report is coordinated by the CNSC, with the co-operation and collaboration of other federal departments and the Canadian nuclear industry. Representatives of the Report Team include members from Natural Resources Canada (NRCan), Nuclear Waste Management Organization (NWMO), Ontario Power Generation (OPG), Areva Resources Ltd (Areva), Atomic Energy of Canada Ltd (AECL) including its Low-Level Radioactive Management Office, Cameco Corporation, Department of Foreign Affairs and International Trade, Permanent Mission of Canada to the International Organizations in Vienna (VPERM), New Brunswick Power and Hydro-Québec.



Canada's Third National Report is available from the IAEA and CNSC's website [3].

Figure 3: Canada's Third National Report for the Joint Convention

### **Step 2 - Analysis**

As part of the peer review process, Canada is required to review the national reports of other Contracting Parties in its Country Group. Canada may also review other Contracting Parties of interest such as those of the G-8, CANDU<sup>®</sup> countries and uranium mine and milling countries.

### **Step 3 - Questions & Answers**

Likewise, Contracting Parties in Canada's Country Group will review Canada's National Report and seek clarification through written questions which must be submitted by Canada 3 months prior to the Review Meeting. Contracting Parties not in Canada's Country Group may also review Canada's National Report and submit questions to Canada. The responses to review questions on Canada's National Report will be assembled with the aid of the Report Team and then approved prior to submitting them to the Contracting Parties one month prior to the Review Meeting.

### **Step 4 - Review Meeting**

Contracting Parties must attend the meetings of Contracting Parties to be held by the IAEA in Vienna, Austria every three years. Since Canada is not a new Contracting Party, it is required to make a short presentation on the following;

- Changes in Canada's national program since the last Review Meeting;
- Actions on challenges from the previous Review Meeting;
- Current challenges;
- Significant events since the last Review Meeting;
- Best practices and efforts.

Canada must also participate actively in the review process involving the presentations of specific Contracting Parties of interest to Canada. This also includes participating actively in any other activities, such as the Open-Ended Working Group and the Plenary Sessions, which may bring changes to the Review Process, Rules of Procedures or the contents of the National Reports. Canada also typically participates as a Review Officer, such as a Chair or Vice-Chair in a Country Group.

#### **4.0. THIRD REVIEW MEETING OF THE JOINT CONVENTION**

##### **4.1. General Overview of Third Review Meeting**

The Third Review Meeting was held in Vienna on May 11-20, 2009. The Third Review Meeting began with a Plenary Meeting on May 11, 2009.

From May 11-15, 2009, the Third Review Meeting was dedicated to the peer review process. Each Contracting Party presented their national programs in either one-third of a day or two-thirds of a day. See Table 1 for Country Group presentation schedule. The Open-Ended Working Group sessions were held in the evening from May 12-14, 2009. Finally, the plenary sessions were held from May 18-20, 2009.

Forty-five out of forty-eight Contracting Parties participated in the Third Review Meeting, namely [3]:

Argentina, Australia, Austria, Belarus, Belgium, Brazil, Bulgaria, Canada, China, Croatia, Czech Republic, Denmark, Estonia, Euratom, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Republic of Korea, Latvia, Lithuania, Luxembourg, Morocco, Netherlands, Nigeria, Norway, Poland, Romania, Russian Federation, Senegal, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Tajikistan, Ukraine, United Kingdom and the United States of America. Three Contracting Parties did not participate in the Review Meeting: Kyrgyzstan, Uruguay and Uzbekistan.

The Nuclear Energy Agency of the Organization for Economic Co-operation and Development (OECD) and the European Bank for Reconstruction and Development (EBRD) had been invited to participate in the Plenary Sessions of the Review Meeting as observers and the representatives of the OECD/NEA and the EBRD were present.

**Table 1: Composition of the Contracting Party Country Groups and Plenary sessions**

		Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Monday	May 11	Plenary					
		Netherlands	South Africa	Slovenia	Argentina	Italy	Russian Federation
Tuesday	May 12	Croatia	Belarus	Sweden	Greece	Iceland	Tajikistan
		United States of America	Slovak Republic		Ukraine	Korea, Republic of	Kyrgyzstan
			Austria				
Wednesday	May 13	Romania	France	Brazil	Czech Republic	Latvia	Ireland
					Switzerland	Finland	
		Denmark	Estonia	EURATOM	Luxembourg		
Thursday	May 14	Belgium	China	Bulgaria	Nigeria	Norway	Poland
					United Kingdom	Germany	Hungary
		Uzbekistan	Senegal	Morocco			
Friday	May 15	Spain	Lithuania	Japan	Australia	Uruguay	Canada
Saturday	May 16	Preparation of Rapporteur’s Report					
Monday	May 18	Plenary					
Tuesday	May 19	Plenary					
Wednesday	May 20	Plenary					

Note: Contracting Parties were allocated to this Timetable considering that those having nuclear power plants (NPP) will have 2/3 days for their presentations and that those without NPP will have 1/3 days for their presentations.

## **4.2. Canada's Participation**

Canada was a member of Country Group 6 which also consisted of Russian Federation, Finland, Hungary, Poland, Tajikistan, Ireland and Kyrgyzstan (Table 1).

Prior to the Third Review Meeting, Canada also reviewed several National Reports, including those in Country Group 6, submitted by the other Contracting Parties and submitted questions on these National Reports.

As required by the Joint Convention, Canada submitted its Third National Report by October 11, 2008. Following the submission of the Third National Report, Canada provided clarification on issues raised by other Contracting Parties. In total Canada received 155 questions from 17 countries. Canada's report was well received and no major issues or concerns were identified by other Contracting Parties.

The Canadian Delegation to the Third Review Meeting of the Joint Convention was headed by Peter Elder, Director General of the Directorate of Nuclear Cycle and Facilities Regulation of the Canadian Nuclear Safety Commission. The Canadian delegation included representatives from the regulator, government and industry. Members of the Canadian Delegation included; Dave McCauley (NRCAN), Pui Wai Yuen (NRCAN), Bob Pollock (Areva), Joan Miller (AECL), Atika Khan (NWMO), Herminia Roman (OPG), Don Howard (CNSC), Julie Mecke (CNSC), Anu Bulkan (CNSC), Dana Pandolfi (CNSC) and Peter Courtney (CNSC). Doug Metcalfe (NRCAN) was a Chairperson of Country Group 3.

On May 15, 2009, Canada presented its Third National Report to Country Group 6 members and other Contracting Parties. Canada's presentation was divided as follows:

1. Introduction by Peter Elder (CNSC)
2. Legislative Framework and Initiatives by Dave McCauley (NRCAN)
3. Regulatory Framework and Initiatives by Don Howard (CNSC)
4. Current and Long-term management of Uranium Mine and Mill Waste by Bob Pollock (Areva)
5. Management of Spent Fuel and Radioactive Waste at AECL sites by Joan Miller (AECL)
6. Long-term Management of Canada's Spent Fuel and the Long-term Management of Low- and Intermediate-Level Radioactive Waste from Ontario Power Generation's Nuclear Power Plants by Atika Khan (NWMO)
7. Good Practices, Current Challenges and Concluding remarks by Peter Elder (CNSC)

## **4.3. Results of the Peer Review**

Following Canada's presentation, Contracting Parties were able to ask questions of the Canadian delegation. Following the questions, the Rapporteur compiled Canada's reports which provided an overview of how Canada manages its spent fuel and radioactive waste. It also identified good practices and challenges/areas to improve. From the Rapporteur's report, Canada was recognized as having the following examples of good practices;

- Substantial progress made in the radioactive waste and spent fuel (used nuclear fuel) management since the last Review Meeting. For example,

- For spent fuel (used nuclear fuel) - in June 2007, the Government of Canada selected the Adaptive Phased Management (APM) approach, recommended by the Nuclear Waste Management Organization (NWMO), for the long-term management of Canada's nuclear-fuel waste.
- For low- and intermediate-level waste - both an environmental assessment and a regulatory review process for a site preparation and construction licence are underway for a deep geologic repository (DGR) for the long-term management of Ontario Power Generation's (OPG) low- and intermediate-level radioactive waste.
- For nuclear legacy liabilities - in 2006, the Government of Canada committed \$520 million over five years to launch a long-term strategy for dealing with nuclear legacy liabilities (Nuclear Legacy Liabilities Program) at Atomic Energy of Canada Limited (AECL) sites, specifically Chalk River Laboratories, Whiteshell Laboratories and the three prototype reactors.
- For legacy mine sites - funding has been provided to remediate Saskatchewan legacy mine sites which includes a 50-50 cost sharing between the Government of Canada and the Province of Saskatchewan
- The regulatory body implemented a Sealed Sources Tracking System and a National Sealed Sources Registry.
- Radioactive waste solutions are responsive to local views

Canada was highly praised for its inclusive, balanced approach to have a delegation comprising the regulator, government and industry was seen to be a demonstration that the approach to radioactive waste management in Canada is integrated. The feedback Canada also received point out some opportunities for improvement or areas of follow-up. These include;

- demonstration on major initiatives for spent fuel and radioactive waste (ex. NWMO APM and OPG's DGR);
- progress on the decommissioning of older waste rock sites and the development of new tailings management capacity;
- improvements to the regulatory framework;
- continued implementation and ongoing funding requirements for AECL's Nuclear Legacy Liability Program;
- maintaining stakeholder confidence;

Canada is expected to report on the progress made to the identified challenges or areas to follow-up on in its Fourth National Report for the Joint Convention.

#### **4.4. Main topics from the Peer Review**

Overall, the main topics that emerged during the Country Group sessions, including Canada's Country Group, were the following [4];

- Development and implementation of national strategies and policies for the long-term management of spent fuel and radioactive waste;



- Progress in the siting, construction and operation of spent fuel and radioactive waste disposal facilities;
- Development of legislative and regulatory frameworks;
- Importance of knowledge management and human resources; and
- International cooperation and public participation;
- Establishment of funding schemes for liabilities;
- Implementation of tracking systems and national registries for disused sealed sources and orphan sources;
- Progression in the remediation of sites and the management of legacy waste.

These topics will likely be discussed further at the next Review Meeting.

## 5.0. CONCLUSION

Canada fully supports the objectives of the Joint Convention and as concluded from the peer review, it has put in place measures to implement its obligations. Canada is committed to ensuring a responsible approach for the long-term management of spent fuel (used nuclear fuel) as well as low- and intermediate-level waste and uranium mine and mill waste. All radioactive waste is presently being held and stored in regulated facilities ensuring the health and safety of persons and the environment.

In addition, Canada achieved its desired outcome for the Third Review Meeting which was to have open and frank discussions on the challenges that are being faced by Contracting Parties and to explore ways to improve the peer review process including looking at best practices from the Contracting Parties.

Canada is currently commencing preparations for the Fourth Review Meeting of the Joint Convention which is scheduled to take place May 14-23, 2012. Canada's Fourth National Report will have to demonstrate that Canada is continuing to meet the obligations of the Joint Convention and that the progress has been made since the last Review Meeting, specifically on the challenges that were identified during the peer review.

## 6.0. REFERENCES

- [1.] Contracting Parties Status  
[http://www.iaea.org/Publications/Documents/Conventions/jointconv\\_status.pdf](http://www.iaea.org/Publications/Documents/Conventions/jointconv_status.pdf)
- [2.] Canada's Third National Report for the Joint Convention  
<http://www.nuclearsafety.gc.ca/eng/readingroom/reports/jointconvention/>
- [3.] Kuniyisa Soda, President; László Koblinger, Vice-President; Frank Marcinowski, Vice-President, *Summary Report, Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, Third Review Meeting of the Contracting Parties, 11 to 20 May 2009, Vienna, Austria, dated 20 May 2009*
- [4.] Kuniyisa Soda, President of the Third Review Meeting *Report of the President of the Review Meeting, Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management Third Review Meeting of the Contracting Parties 11 to 20 May 2009, Vienna, Austria, dated 20 May 2009.*