III. The Canadian Nuclear Safety Commission

Performance Against Plans

The following section outlines the results achieved during 2004-2005 in implementing the 2004-2005 to 2006-2007 strategic plan.

1. Outcome: A clear and pragmatic regulatory framework

The CNSC ensures its licensees are aware of and comply with all requirements respecting the protection of Canadians and the peaceful use of nuclear energy and materials.

The CNSC's regulatory framework is composed of:

- The *Nuclear Safety and Control Act*, regulations and regulatory documents
- The *Safeguards Agreement and Additional Protocol* between Canada and the International Atomic Energy Agency (IAEA)
- Canada's bilateral Nuclear Cooperation Agreements
- The *Canadian Environmental Assessment Act*
- The *Nuclear Liability* Act

The following highlights the key enhancements to the CNSC regulatory framework during the reporting year.

Ongoing review of the *Nuclear Safety and Control Act* and regulations

The *Nuclear Safety and Control Act* (NSCA), which gives the organization its specific regulatory authority, does not state a mandatory statutory review period. Nevertheless, the CNSC conducts an evergreen review of the NSCA and in 2004-2005, developed an ongoing list of possible amendments to the legislation should the Government of Canada decide to subject it to a review. No changes to the legislation are contemplated at this time.

The CNSC received recommendations for amendments to CNSC regulations from the Standing Joint Committee on the Scrutiny of Regulations (SJCSR). A list of amendments will be provided to the Department of Justice for inclusion in its miscellaneous amendment program for regulations.

Contribution to the Smart Regulation Initiative

Effectiveness and efficiency are principles that are central to the way the CNSC manages its business and regulates to protect health, safety, security and the environment, and to respect international obligations. The CNSC's key priorities include commitment to an evergreen, risk-informed approach to regulatory strategies, regulations and licensing requirements, in line with the Government of Canada's Smart Regulation initiative.

In 2004-2005, the CNSC contributed to the government-wide implementation of Smart Regulation by participating in interdepartmental meetings on the initiative, and monitoring the progress of the External Advisory Committee on Smart Regulation (EACSR). The CNSC assessed itself against the EACSR's recommendations on Smart Regulation, and determined that it already adheres to many of its practices and objectives. These include transparency (public hearings and published decisions), public consultation, coordination of regulatory efforts across jurisdictions, and integration of international best practices and norms where appropriate to the Canadian context.

As part of its Smart Regulation effort, the CNSC reviewed how it applies the *Canadian Environmental Assessment Act* (CEAA), with a view to improving the effectiveness and efficiency of its application of the CEAA requirements.

Regulatory amendments and improvements to the regulatory framework

- Published:
  - *Policy on Regulatory Fundamentals (P-299)*
  - *Policy on Managing Radioactive Wastes (P-290)*
  - *Standard for Making Changes to Dose-Related Information Filed with the National Dose Registry (S-260)*
  - *Guide for Keeping Radiation Exposures and Doses As Low as Reasonably Achievable (G-129, rev.1)*

- *Nuclear Security Regulations:* revised proposed amendments to the regulatory requirements for nuclear security in response to extensive stakeholder input. The proposed changes will make the regulations more consistent with international recommendations and best practices, take into account current security threats, and address stakeholder input. The proposed changes are scheduled to be pre-published in the Canada Gazette in the spring of 2005.

- *Class II Nuclear Facilities and Prescribed Equipment Regulations:* amendments proposed to the Class II regulations to address deficiencies in the current regulations, to enhance safety and to reflect the latest international standards, consistent with the CNSC's risk-informed regulatory initiatives and the principles of Smart Regulation. Pre-consultation and publication in the Canada Gazette is scheduled for 2005.

- *Nuclear Substances and Radiation Devices (NSRD) Regulations*: amendments proposed to the NSRD regulations to introduce the latest international values for exemption quantities, surface contamination and clearance levels for regulating those who possess nuclear substances. Pre-consultation and publication in the Canada Gazette is scheduled for 2005.

- Thirty-nine consultative regulatory documents were issued with respect to various operational areas such as Type I and Type II inspection procedures, safety analysis for nuclear power plants, environmental protection policies, programs and procedures at Class I nuclear facilities and uranium mines and mills, and requirements for disposal of nuclear substances.

As part of its commitment to the safe and secure use of radioactive material, Canada has endorsed and continues to support the IAEA *Code of Conduct on the Safety and Security of Radioactive Sources*. This initiative will result in a comprehensive regulatory regime for the possession, use, transport and international transfer of high-risk radioactive sources.

In support of the international regulatory regime, the CNSC contributed its expertise and perspective towards the development of two additional IAEA documents, the *Code of Conduct on the Safety of Research Reactors* and *Safety Requirements for Research Reactors*. These documents will help strengthen the regulatory framework governing the safe operation of research reactors at home and abroad.

A more effective and efficient regulatory regime

Environment Canada has determined that the CNSC, under the *Nuclear Safety and Control Act*, can play a role in controlling or preventing the release into the environment of uranium which has been deemed to be toxic under the 1999 *Canadian Environmental Protection Act.* A 2003 Memorandum of Understanding (MoU) between the CNSC and Environment Canada committed these organizations to assist each other in certain activities to prevent duplication of effort.

In 2004, an annex to this MoU was signed concerning the process for risk management of uranium releases from uranium mines and mills. For example, under this agreement, the CNSC, with the support of Environment Canada, will require the implementation of more stringent preventative or control measures for the Rabbit Lake Uranium Mine. The licensee will develop and implement measures to reduce the concentration of uranium effluents released from the facilities. Requirements for measures at other uranium mines and mills will be addressed based on the outcome of environmental assessments completed for each facility.

This initiative supports Smart Regulation by reducing duplication and simplifying the regulatory process for licensees, while meeting the requirements of the CNSC and Environment Canada.

The CNSC is committed to an evergreen, risk-informed approach to regulatory strategies, regulations and licensing requirements, in line with the Government of Canada's Smart Regulation initiative. Modernizing the regulatory framework helps bring clarity and consistency to it, helps ensure that both the CNSC and licensees adhere to the *Nuclear Safety and Control Act* and associated regulations, and promotes efficient delivery of services to Canadians.

2. Outcome: Individuals and organizations that operate safely and conform to safeguards and non-proliferation requirements

The CNSC ensures that licences and certifications are issued to those individuals or organizations who demonstrate they can operate safely and conform to international requirements. Activities such as public hearings, certification decisions and licence assessments help the CNSC ensure its licensees are qualified to carry out the activities for which they are seeking a licence. The Annual Report of the Commission Tribunal, available on the reverse side of this document, provides information on the Commission's licensing proceedings for 2004-2005. Licensing with respect to licences other than those for major facilities has been delegated by the Commission to senior staff, referred to as Designated Officers, for review. Designated Officers review more than 98% of applications received by the Commission, through streamlined processes commensurate with the level of risk and more limited public interest in these matters.

Implementing risk-informed licensing methodology

Nuclear substance regulation includes approximately 4,000 licences and over 2,500 licensees. The CNSC developed a risk-informed methodology for the allocation of resources for nuclear substance regulation which has resulted in increased operational efficiency and integration of all licensing and compliance requirements. Clear expectations of regulatory requirements have been developed with the goal to promote safety with nuclear substances.

In 2004-2005, the CNSC completed an automated verification planning tool and continued development of licence assessment worksheets to improve licensee understanding of licensing requirements. In addition, assessment summaries have been introduced for licensing and renewal of Class II Nuclear Facilities. These summaries provide licensees with a list of regulatory requirements and their assessed performance, thereby increasing the transparency of the process.

The CNSC also developed a risk-informed methodology to be incorporated into the authorization system for the import and export of nuclear substances and materials that will provide greater transparency and predictability of the process for stakeholders, including licensees.

Licensing basis for the design of new nuclear power plants

Canada's regulatory framework for licensing major facilities such as nuclear power plants has not been updated comprehensively since the previous generation of facilities was licensed in the 1970s and 1980s. The CNSC has developed a regulatory document on the licensing basis for the design of power reactors. It will be used to assess the licensability of any new reactors in Canada. It is a proactive initiative to modernize the regulatory framework in response to the nuclear sector's potential interest in new power reactors.

This licensing basis document will be applied to the Advanced CANDU Reactor being designed by Atomic Energy of Canada Limited (AECL) and to any other proposed reactor design. Because operators may choose from a variety of nuclear power technologies, care is being taken to make the general requirements technology neutral and suitable to different reactor types.

Waste management

The new CNSC Regulatory Policy P-290, *Managing Radioactive Waste*, issued in July 2004, established as a key principle the minimization of radioactive waste through design measures, operating procedures and decommissioning practices. Licensees and CNSC staff will be guided by this principle when considering design, operating and decommissioning measures for new reactors.

Reactor refurbishment

For refurbishment projects, the CNSC reviewed past practices and identified the essential components of a standard regulatory framework. In doing so, the CNSC identified well in advance the measures that would be necessary for licensees to continue safe operation of modified nuclear facilities.

Extending licence periods

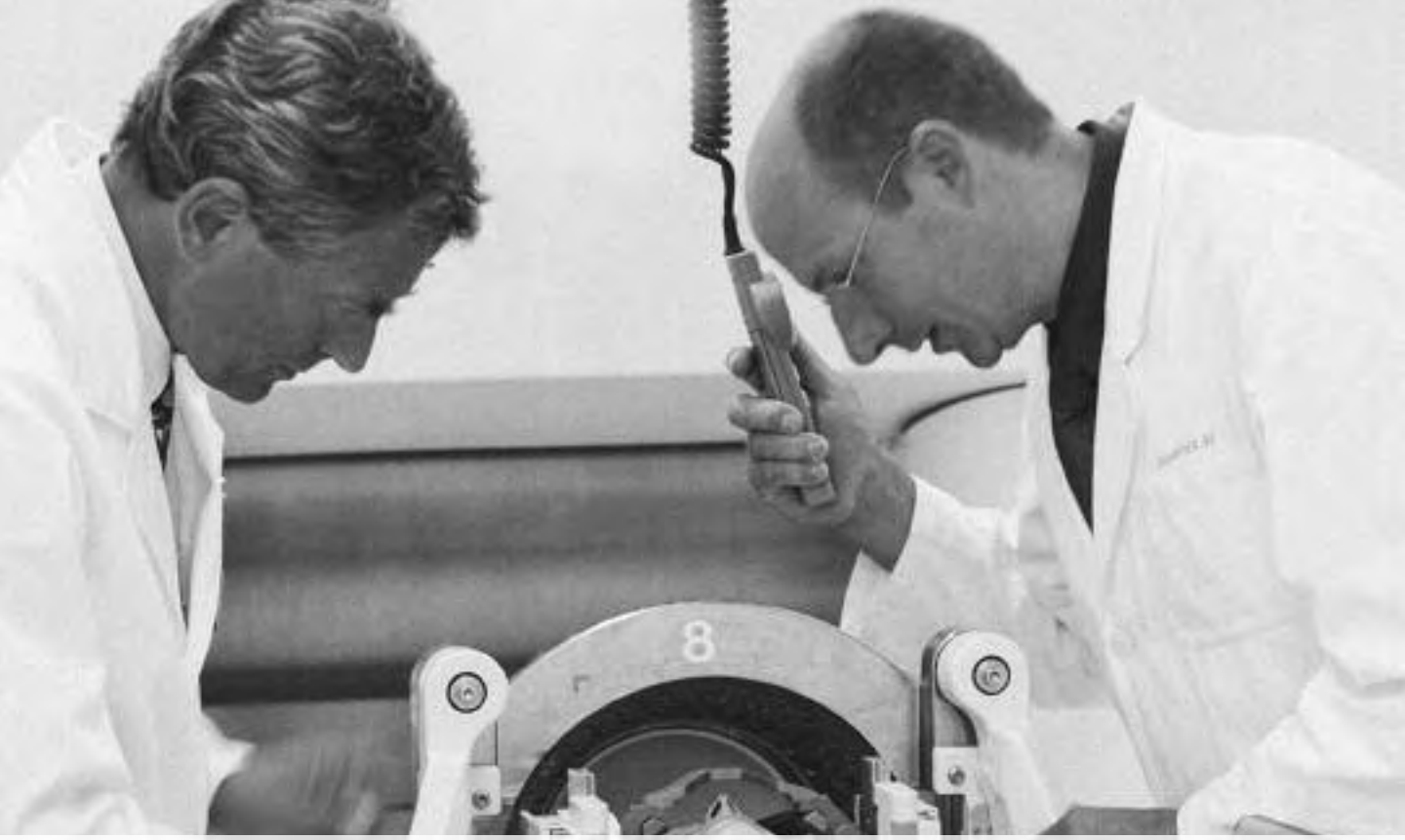
Licence periods were extended for nuclear substances and radiation devices, resulting in better management of regulatory and licensee resources where greater focus is on compliance and safety rather than the licensing process. As a result, licence renewals have decreased, and CNSC resources have been redirected towards verifying licensee compliance and therefore safety.

Other licensing-related initiatives:

- The integration of radioactive substance licences with the power reactor operating licence at one facility on a trial basis, further reducing the administrative burden on licensees.
- Environmental assessments (EAs) are required under certain licence applications to identify possible impacts and mitigation measures necessary to protect the health, safety and security of Canadians, and the environment. As an example, the CNSC conducted an EA of a proposal by Cameco Corporation for a proposed slightly enriched uranium blending facility in Port Hope, Ontario, which included the review of Cameco's EA study report.
- CNSC staff began the comprehensive process to review the re-licensing of the Pickering Nuclear Power Plant (NPP) for five years. This is the first of many planned NPP licence renewals and includes the operation of Pickering Unit 4, the restart of Pickering Unit 1, and the possible re-start of Pickering Units 2 and 3.
- To protect Canadian taxpayers and the federal government from potential liability should the licensee be unable to fulfill their regulatory obligations in the future, the CNSC requires the provision of the financial guarantees from licensees for certain types of activities, including decommissioning. In 2004-2005, the CNSC accepted financial guarantees from Canadian Light Source Inc., AECL Whiteshell Laboratories, and for five SLOWPOKE reactor facilities across Canada.
- In accordance with Canada's bilateral and multilateral nuclear non-proliferation obligations and to ensure that international transfers of nuclear and nuclear-related items are for peaceful purposes only, the CNSC continued to assess import/export applications and safeguards conditions relevant to licences to ensure peaceful international transfer of nuclear and nuclear-related items and Canada's compliance with its safeguards obligations.

3. Outcome: High levels of compliance with the regulatory framework

The CNSC rigorously enforces its regulatory requirements through a variety of measures. Licensee compliance is verified through inspections, reviews, audits and assessments. The CNSC also requires any licensee found to be non-compliant with either its licence conditions or the regulatory requirements to resolve the issue and demonstrate improvement by a specified deadline, or face enforcement action.



Licensing protects health, safety, security and the environment

The CNSC plays a key role in protecting health, safety, security and the environment by regulating, monitoring and inspecting licensed activities. Among other activities, this role includes conducting the CNSC's comprehensive and diligent system of licensing.

Examples of results in this area during 2004-2005 include the licensing of the decommissioning of the Cluff Lake uranium mine in Northern Saskatchewan, the licensing of the Canada's first Gamma Knife facility and the licensing of Canadian Light Source Inc., a world-class research and development synchrotron facility in Saskatoon.

Decommissioning the Cluff Lake mine

The first of its generation of Northern Saskatchewan uranium mines to move into decommissioning, the Cluff Lake mine received a decommissioning licence in July 2004. The granting of this licence by the Commission Tribunal followed five years of environmental assessment, public consultations and regulatory review, and marked the initial phase of efforts by COGEMA Resources Inc. to return the Cluff Lake site to a natural state.

Dismantling the mill by COGEMA Resources Inc. began in 2004, with most major decommissioning activities to conclude in 2005. This will be followed by several years of CNSC monitoring to ensure compliance with the *Canadian Environmental Assessment Act* (CEAA).

The unique nature of Gamma Knife facilities

A licence was issued in 2004-2005 for a Canada's first Gamma Knife facility, located in Winnipeg, Manitoba. When the CNSC conducted a compliance inspection of the Winnipeg facility in 2004, it recognized the unique nature of stereotactic gamma teletherapy, determining and documenting adequate radiation safety standards. For example, the main radiological hazard in the facility results from scattered gamma radiation, thus reducing the need for primary barriers to shield the facility. As a result, new licensing requirements for Gamma Knife facilities were fully implemented during the reporting period.

Also known as stereotactic radiosurgery, Gamma Knife is a precise, non-invasive procedure that can destroy deep-seated vascular malformations and brain tumours once considered inoperable. The technology does not require any incision; instead it uses a concentrated radiation dose of 201 Cobalt-60 sources with a total activity of 244 TBq to beam radiation at a specific area and destroy only abnormal tissue.

In addition to the Winnipeg facility, another is licensed and operating in Sherbrooke, Québec, and another is under construction in Toronto.

Operation of Canadian Light Source begins

Owned by the University of Saskatchewan, the Canadian Light Source Inc. (CLS) is a national facility for synchrotron light research that brings together academic and industrial researchers to conduct materials R&D, and is subject to oversight of the Canadian Nuclear Safety Commission.

A synchrotron produces infra-red, ultraviolet and X-ray light which scientists use to see the microscopic nature of matter, down to the level of the atom. Information obtained with this technology can be used for many applications such as developing new drugs, building more powerful computer chips, and helping with mining clean-up.

The CLS met the requirements of commissioning – conceptualizing, designing and constructing a facility that is safe for use – and the Commission Tribunal granted an operating licence for routine operation in June 2004.

During the reporting year, the CNSC continued to conduct its compliance program that involved ongoing monitoring of the production, use, storage and flow of nuclear material at Canadian nuclear facilities, and the maintenance of a national nuclear materials accountancy system. CNSC staff report on licensee operations through mid-term performance reports, status reports, significant development reports and annual industry reports. This is in addition to performance information provided in licensing hearings, transcripts of which are available to the public along with records of proceedings. The CNSC Annual Industry Report on the Safety Performance of the Canadian Nuclear Power Industry is prepared on an annual basis, and contains the Report Card on Nuclear Power Plant Performance. The most recent Report Card is an evaluation of safe and secure installations, and is available on page 41. CNSC staff observed, through inspections and reviews, that the power reactor industry operated safely in 2004. No worker at any power reactor station or member of the public received a radiation dose in excess of the regulatory limits.

Compliance planning and management

Designed to administer, promote and assess compliance, the CNSC has commenced the use of risk-informed formulas to determine inspection frequency and resource requirements. The CNSC is implementing the new Type I and Type II[2] inspection planning program, along with associated compliance tools, working cooperatively with licensees to improve transparency, communication, performance and safety. During the reporting year, the CNSC also conducted extensive training of staff in the various facets of the new risk management program, reviewed the risk-profile of certain nuclear facilities, and revised baseline compliance plans.

In March 2004, the CNSC initiated the Power Reactor Regulation Improvement Program (PRRIP), intended to ensure a power reactor regulation program delivers the best possible performance for licensees and the public. The PRRIP will achieve this by examining and improving all relevant aspects of the regulation program, from planning and problem-solving to communication and management methods. The goal of the PRRIP is to facilitate the CNSC's management of the risk to public health, safety, security and the environment arising from the operation of nuclear power reactors in Canada. More information on the PRRIP is available on page 27.

Nuclear security

CNSC staff continued to monitor potential threats to Canadian nuclear facilities, and inspected and evaluated licensees' physical security programs, placing priority on higher-risk facilities. Specifically, security inspections were conducted at nuclear power plants, nuclear research facilities, fuel fabrication and tritium processing facilities, radioisotope facilities and waste management areas. Security inspections of other facilities such as hospital and university laboratories that use, process or store high-risk radioactive sources were also conducted and resulted in measures to improve security. Overall, CNSC staff were satisfied that licensees are taking appropriate measures to meet the requirements for physical protection of their facilities.

CNSC staff are in the process of developing two standards to address the security requirements for high-risk sources during transport as well as during storage.

[2]Type I inspections are on-site audits and evaluations of a licensee's programs, processes and practices. Type II inspections are routine (item-by-item) checks and rounds that typically focus on the outputs, or performance of licensee programs, processes and practices. Findings from Type II inspections play a key role in identifying where a Type I inspection may be required to determine systemic problems in licensee programs, processes or practices.

Radiation protection for carriers

During the reporting year, the CNSC continued to actively promote the new international requirements for radiation protection for licensed and non-licensed carriers, which came into effect in June 2004. These requirements improve radiation safety of transport carriers and other stakeholders. To build awareness of the new requirements, the CNSC prepared a supporting guide (G-314) to help carriers establish their own radiation protection programs. It also undertook numerous activities such as conducting awareness sessions and encouraging carriers to submit their radiation protection programs to the CNSC for review and follow up.

As of May 31, 2004, carriers not licensed by the CNSC were required to have work procedures and a radiation protection program in place based on the risk of worker exposure to radiation. Visits to approximately 30 transport companies were conducted to promote compliance with this new requirement and Transport Type I inspections have been conducted at approximately 10 sites. Implementation of the Radiation Protection Program for these transport carriers not licensed by the CNSC is underway.

Sealed source tracking

The CNSC played a significant role in developing the IAEA *Code of Conduct on the Safety and Security of Radioactive Sources*, which has been endorsed by the Government of Canada. It also played a significant role in developing the IAEA Technical Document 1344 entitled *The Categorization of Radioactive Sources*.

In support of this *Code of Conduct*, the CNSC began to build a national sealed source registry database and tracking system for high-risk radioactive sources. Under the new system, radioactive sources are ranked and assigned to one of five categories to provide an internationally-harmonized foundation for making risk-informed decisions. Implementation, to track the highest-risk categories, is scheduled for January 2006. The completed system will enhance the CNSC's regulatory control of radioactive sources used in medical, industrial and research activities throughout Canada. The system will be available to stakeholders through a Web-enabled user interface. Licensees will update inventory data electronically, enabling the CNSC to track the movement of high-risk sources.

Safeguards, non-proliferation and the Nuclear Material Accounting System

In response to safeguards measures introduced in Canada in 2000, IAEA verification objectives have undergone a major shift and have been extended to include facilities not previously subject to safeguards requirements. To establish national-level safeguards in Canada, the CNSC has worked collaboratively with the IAEA in areas such as:

- Installation of new safeguards equipment at facilities.
- Implementation of an enhanced nuclear material accounting system allowing licensees to make submissions electronically and allowing the CNSC to meet its international non-proliferation and safeguards obligations more effectively.
- Development of a new safeguards approach at Canada's uranium refining and conversion sites.
- Exchange of bilateral nuclear inventory reports with other countries, and reconciliation of inventories with them. Such activity ensures that international transfers of nuclear items are for peaceful purposes only, and in accordance with Canada's bilateral and multilateral nuclear non-proliferation obligations.
- Provision to the IAEA of periodic nuclear material accounting reports and other information required under Canada's Safeguards Agreement and Additional Protocol with the IAEA.
- Facilitation of access by IAEA safeguards inspectors to nuclear facilities and other locations in Canada.

In a major effort by the CNSC to ensure that Canadian uranium conversion and refining facilities conform to new safeguards requirements, the CNSC conducted ongoing negotiations with the IAEA and industry to establish a system of accountancy for nuclear material and a plan for IAEA verification of initial inventories in mid-2005 at refining facilities.

Safety culture and management

The CNSC encourages licensees to embrace a safety culture that results in behaviour that exceeds expectations of the regulator. During the reporting year, the CNSC participated in workshops in Canada and internationally on safety culture and management. This involvement allows the CNSC to influence the direction of the nuclear industry on safety culture at home and abroad, and to adopt successful practices deployed elsewhere.

The CNSC held a safety culture symposium for industry in 2004. The workshop highlighted the significant progress the industry has made in the area of safety culture and the recognition of its importance. For example, some facilities have developed safety culture frameworks, while others have developed and piloted evaluation methods for performing safety culture self-assessments. The CNSC has been developing a safety management program that will address the need for information to be presented to the Commission Tribunal, providing a complete picture of operators' performance and safety trends.

Other compliance-related initiatives:

- The CNSC conducted compliance inspections of high- and moderate-risk licensed activities, which included 959 of the 2380 planned inspections of medical, academic and industrial licensees. In the 2005-2006 fiscal year, the CNSC will be requesting additional resources to enable us to ensure an appropriate level of compliance inspections while handling an increase in regulatory workload. Compliance efforts identified and responded to 117 reportable occurrences, of which 10 involved the transportation of nuclear substances, 27 involved the recycling industry and 24 involved lost or stolen material. The reportable occurrences in these activity areas resulted in the issuance of four orders related to health and safety and six incidents of exceeding dose limits to nuclear energy workers.

- The CNSC continued to emphasize integrated audits at licensed facilities. Multi-disciplinary teams carrying out audits of more than one safety area can identify more comprehensively potential risks to workers, the public and the environment, and set priorities for remedial actions.

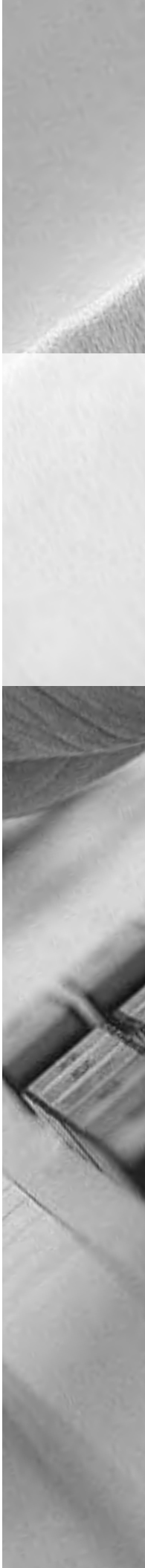
4. Outcome: CNSC cooperates and integrates its activities in national/international nuclear fora

The CNSC works cooperatively on an ongoing basis with a number of national and international organizations to advance nuclear safety and security at home and abroad, and to provide benchmarking information.

Cooperative frameworks

The CNSC developed a framework for establishing and reviewing domestic cooperative arrangements with federal and provincial organizations, departments and agencies. The framework enhances cooperation and integration by providing CNSC staff with guidance to ensure that administrative arrangements are consistent with the CNSC mandate.

The CNSC also developed a framework for tracking and coordinating Memoranda of Understanding, cooperative undertakings with foreign governments/agencies and international organizations, and a framework for assessing the value of participating in international activities and subsequently evaluating the results. Targeted involvement with international fora is essential to achieving the CNSC's commitment to promote nuclear safety, non-proliferation and safeguards objectives in Canada and worldwide.



An Improved Program for Regulating Power Reactors

Initiated in March 2004, the Power Reactor Regulation Improvement Program (PRRIP) is intended to ensure the power reactor regulation program delivers the best possible performance of the regulatory fundamentals. The PRRIP will achieve this by examining and improving all relevant aspects of the regulation program, from planning and problem-solving to communication and management methods.

The improved power reactor program will include:

- Regulatory activity based on a formal, well-articulated risk management approach;
- Clearer roles and accountabilities for all stakeholders in the process;
- A single point of contact for licensees;
- Consistency of regulatory approach within and across all power reactor licensees;
- Clear and documented processes defining how the various contributors can work together in the most coordinated and efficient way; and
- A streamlined information management system that supports the CNSC's business.

The Power Reactor Service Line (PRSL) group was re-aligned during the reporting year to enhance effectiveness and efficiency, and to meet changing demands. By providing a sharper focus, reducing duplication, and creating more appropriate lines of authority and accountability, the realigned organization structure improves clarity by consolidating specialist functions, such as quality assurance, radiation protection, environmental protection, personnel certification and event analysis into specialist divisions focused on these areas of responsibility.

International nuclear non-proliferation activities

In Canada, the CNSC is responsible for implementing the international nuclear non-proliferation obligations agreed to by Canada. It does so through its regulatory programs under the *Nuclear Control and Safety Act* (NSCA) and through its participation in multilateral non-proliferation initiatives on behalf of the Government of Canada. The CNSC acted as technical advisor to the Nuclear Non-Proliferation Treaty (NPT) 2004 Preparatory Committee and is actively involved in the Canadian delegation participating in the May 2005 Review Conference.

The CNSC advised the Vienna Permanent Mission to the IAEA, Foreign Affairs Canada and other Canadian stakeholder organizations in order to advance Canadian positions on safeguards, export controls and non-proliferation with a view of strengthening the nuclear non-proliferation regime.

The CNSC also held consultations on the implementation of bilateral non-proliferation trade agreements with Argentina, Australia, Brazil, EURATOM, the Russian Federation, Spain, the United Kingdom and the United States for the purpose of assuring that Canadian exports of nuclear items are for peaceful purposes only, and to contribute to the international non-proliferation regime. For example, in 2004, the CNSC amended an Administrative Arrangement with the Russian Federation to assure adequate non-proliferation verification measures are in place for Canadian transfers of uranium to Russia.

The CNSC continued its ongoing international work on multilateral guidelines with the Nuclear Suppliers Group and the 35-nation NPT Exporters (Zangger) Committee to toughen nuclear export controls, particularly in response to emerging non-proliferation challenges.

IAEA Safeguards – Domestic and international

In 2004-2005, the CNSC participated in numerous activities with the IAEA to address domestic safeguards challenges and provide support for strengthened IAEA safeguards. Key cooperative activities included:

- Participation in a major review of the IAEA's safeguards system to provide recommendations aimed at maintaining the credibility of the safeguards system and enhancing its effectiveness and efficiency.
- Continued installation of new, technologically advanced safeguards equipment at Canadian nuclear facilities, to be completed at all locations by the end of 2005. Assistance has been provided at Pickering and Gentilly-2 to replace aging video surveillance systems with digital ones that include remote surveillance capabilities. Assistance was also provided to the IAEA to find secure, cost-effective methods to gain remote access to safeguards data collected at facilities. This cooperation with the IAEA in both planning and funding, and the ability to remotely monitor activities relevant to safeguards, are crucial to establishing a state-level safeguards approach in Canada.
- Completed a major software upgrade to the equipment used by the IAEA to remotely monitor the discharge of spent fuel from CANDU reactors. The ability to collect and review this data at the IAEA offices reduces expense and disruption at the facilities and also allows the IAEA to review and analyze data more quickly.
- Continued work with the Swedish nuclear regulator on improvements to the Digital Cerenkov Viewing Device used by the IAEA to verify long-cooled, low burn-up fuel held in storage pools. It is a more cost-effective technology.
- Co-operation with the IAEA and its member states to improve safeguards implementation by providing input into the IAEA revision of a safeguards publication on State System of Accounting for and Control of Nuclear Material (SSAC) guidelines.

- Ongoing formal consultations with the IAEA and the Canadian nuclear industry to finalize the Canadian integrated safeguards approach.

Other cooperative activities

- Consultation with other government stakeholders to develop mechanisms that support efficient, effective and accountable assessment and licensing of applications for the import and export of controlled nuclear and nuclear-related dual-use substances, materials, equipment and technology.
- Provision of technical support for a major G8 initiative aimed at preventing the acquisition of weapons and materials of mass destruction by terrorists or those who shelter them.
- Publication in 2004 of Canada's Third Report on the Convention on Nuclear Safety by the CNSC in consultation with industry representatives and other Government of Canada departments. In April 2005, the President and CEO of the CNSC, Ms Linda J. Keen, will preside over the Third Review Meeting of the IAEA Convention on Nuclear Safety. Such high-profile involvement provides the CNSC with an opportunity to influence the international agenda and to learn from other leaders in the field.

Domestic cooperation

- Hosting a three-day annual meeting of the Federal Provincial Territorial Radiation Protection Committee, whose purpose is to harmonize regulation and standards across the industry by sharing progress, new ideas and priorities.
- Co-hosting a Canadian forum on the 2005 International Committee on Radiation Protection (ICRP) Recommendations, attended by the public industry and other regulatory and government bodies. Such activities provide the CNSC with the opportunity to communicate regularly with various government and industry stakeholders and ensure that Canadian needs and viewpoints are taken into account in developing international standards. They also allow the CNSC to influence the development and application of international standards and to adopt best practices from our peers around the world.

Nuclear Emergency Management

The CNSC is employing a collaborative approach in developing a new Nuclear Emergency Management (NEM) policy and upgraded programs. It is being developed in partnership with external stakeholders, and has included extensive consultations with licensees, provincial, municipal and federal government organizations involved in emergency preparedness management.

The CNSC NEM policy provides the foundation for all CNSC emergency management activities. Specifically, it outlines responses consistent with the risks at hand, clarifies roles and responsibilities, and helps maintain current capacity while taking future requirements into account. The policy will be adopted following public consultation.

In addition to developing the policy, key elements of an improved nuclear emergency management program have been identified and updated emergency plans and procedures are under development.

In addition, the CNSC Emergency Operations Centre (EOC) has been redesigned and reorganized to increase reliability and functionality and enhance back-up resources. Extensive training on roles, responsibilities, procedures and emergency response to chemical, biological, radiological and nuclear-related events has been conducted for staff and other Government of Canada departments. A wide variety of activities have been undertaken, ranging from creating a federal-provincial-territorial committee on radiological/nuclear emergencies to the installation of an emergency power generator at CNSC headquarters to maintain the CNSC's capacity in the event of an outage.

Strengthening Safeguards

The verification approaches and measures utilized by the IAEA to verify that nuclear material is not diverted from peaceful uses to nuclear weapons or other nuclear explosive devices, are commonly referred to as 'safeguards'. In 1972, Canada was the first country to bring into force a comprehensive safeguards agreement with the IAEA for such verification as required by the Nuclear Non-Proliferation Treaty (NPT).

The CNSC also cooperates with the IAEA in developing new safeguards approaches for Canadian facilities and contributes to efforts to strengthen safeguards internationally. Through its regulatory process, the CNSC ensures that all relevant licensees have in place policies and procedures that include the reporting and monitoring of nuclear material and nuclear activities and the provision of access to nuclear facilities for IAEA safeguards inspectors. The CNSC performs compliance and auditing activities to ensure that these policies and procedures remain sufficient to meet safeguards requirements. Through its Safeguards Support Program, the CNSC also assists the IAEA in developing advanced safeguards equipment or techniques aimed at strengthening the effectiveness and efficiency of safeguards implementation. The Program also supports domestic needs in resolving specific safeguards issues related to Canadian nuclear facilities and the use of nuclear material.

At all stages of the nuclear cycle, from uranium refining and conversion sites to nuclear power plants and waste management facilities, the CNSC has been actively working with the IAEA to design better approaches for meeting Canada's international obligations.

For example, since 2002, as a result of strengthened safeguards, there has been a dramatic increase in the resources required to track transfers of spent fuel to dry storage at multi-unit power reactor sites in Canada. To address this issue, the CNSC collaborated with the IAEA and Ontario Power Generation on a successful field trial at the Pickering reactor site in April-May 2004 to test a more cost-effective approach to track transfers of spent fuel to dry storage. All participants agreed that the trial provided a feasible approach that could be implemented at any multi-unit CANDU station.

The CNSC's experience in this area led to an invitation to participate in a similar field trial in April 2005 at a single-unit CANDU station in the Republic of Korea. Participation in this field trial reflects the CNSC's ongoing efforts to optimize the national and international implementation of safeguards.

5. Outcome: Stakeholders' understanding of the regulatory program

The CNSC is committed to openness and transparency. This commitment requires the CNSC to engage stakeholders above and beyond the public hearings and meetings process, through a variety of appropriate consultation processes, effective information sharing and communications activities.

In 2004-2005, the CNSC carried out stakeholder surveys, implemented a well-structured and sustainable Outreach Program, improved the CNSC Web site and launched a pilot project to communicate Commission proceedings using Web-casting and other tools.

Surveying stakeholder awareness and perceptions

The CNSC increased its knowledge of key stakeholder issues and concerns by undertaking a variety of survey activities in 2004-2005.

Stakeholder groups and 1,055 Canadian citizens were surveyed in 2004 to evaluate their knowledge of, level of confidence in and satisfaction with the performance of the CNSC as a nuclear regulator. The results indicated that more than half of Canadians feel confident that the nuclear industry in our country has effective regulation. In addition, the CNSC undertook an environmental scan to obtain a clearer picture of the political, cultural and social climate in which it operates. An analysis was also conducted of how media coverage presents the CNSC, nuclear regulation, and nuclear energy in general, in order to further understand the environment and the needs and perceptions of stakeholders. The knowledge acquired through these activities has contributed to the CNSC improving its communications and outreach strategies to meet the needs of citizens and stakeholders more effectively.

Developing a sustainable Outreach Program

Building on tools and initiatives already in place, an Outreach Program was launched on June 4, 2004 to heighten public awareness and understanding of regulated nuclear activities and the CNSC's role in protecting health, safety, security and the environment. Outreach activities undertaken in 2004-2005 include meetings with mayors in communities near nuclear facilities, meetings with licensee boards of directors, and providing affected communities with the opportunity to participate directly during public hearings by electronic means or through visits by the Commission.

Other activities, such as speaking engagements for the President and CEO and other CNSC staff, in Canada and abroad, offer opportunities to interact with stakeholders about the organization's role, responsibilities and priorities.

Based on results of outreach activities and stakeholder surveys, an analysis is being prepared to identify where outreach can be enhanced in 2005-2006.

Other activities

- Publication of a new brochure series to provide stakeholders with information about the CNSC's work and its public hearing process.
- Improved information on the CNSC's international activities and research and support program was developed and posted to the CNSC's Web site. Other activities to improve the user-friendliness of the Web site included work to develop a subscription service to allow the public and stakeholders to receive automatic e-mail notification when new information is available on the site, and a redesign of the Commission hearings and meetings Web site, to be launched in the spring of 2005.
- Coordination of a joint CNSC-IAEA-industry meeting on the implementation of integrated safeguards in Canada. The goal was to ensure that stakeholders developed a common understanding of regulatory requirements and industry challenges.
- Development of an e-learning initiative to support licensee understanding of and compliance with nuclear non-proliferation import/export regulations. The first electronic modules are scheduled to be launched in the fall of 2005.

6. Management and Enabling Infrastructure

The CNSC's management and enabling infrastructure ensure that CNSC staff have the necessary support to fulfill their mandates to meet or exceed the accountability requirements of central and parliamentary agencies.

Integrated planning for results, efficiency and consistency

In 2004-2005, the CNSC developed and implemented comprehensive results-based planning as well as corporate strategies and processes to enhance the effectiveness, efficiency and consistency of its operations and management. This included the introduction of strategic and business plans for the CNSC and its major business lines, and linking them to results, budgets and performance. The CNSC also developed a planning and reporting cycle to better align the strategic, business, work plan and budget cycles. The planning and reporting cycle is part of the CNSC's management system.

Human resources

The CNSC continued to implement key components of its workforce sustainability strategy. This strategy is driven by the CNSC's operational business needs.

For example, the CNSC has implemented a Leadership Development Program to build a strong team of managers and leaders. The program offers courses in leadership, resourcing, financial management, contracting, privacy, staff relations, health and safety, etc. The program also includes use of 360-degree performance evaluations for senior management, armchair discussions and access to coaching. In addition, the leadership team assembles two to three times a year to address key issues such as values and ethics and communications.

In 2004, part of the CNSC workforce was certified by the Public Service Staff Relations Board to be represented by the Professional Institute of the Public Service of Canada (PIPSC). The collective bargaining process with newly unionized staff began in 2004, and was ongoing as of March 31, 2005.

A survey of CNSC staff on internal communications needs was conducted in 2004, and was followed-up with targeted focus groups. The survey identified opportunities for improvement and efforts will continue in 2005-2006 to address the findings.

Values and Ethics Strategy

A clearly-articulated values and ethics strategy is a key component of a sound governance structure. The CNSC's Values and Ethics Strategy reflects the organization's values, provides practical tools for ethical decision-making by CNSC staff, includes a formal process for receiving information about alleged wrongdoing in the workplace and supports staff in fulfilling their responsibilities in regulating nuclear energy and materials. It also strengthens the CNSC's relationships with licensees and stakeholders.

Tailored specifically for the CNSC, the values and ethics strategy under the theme "*Helping good people do the right thing*" was formally launched in March 2005. The strategy meets government requirements, and reflects the spirit and intent of the draft *Public Servants Disclosure Protection Act* (Bill C-11).

Other improvement initiatives:

- A benchmarking study comparing the CNSC's corporate services against services in four similar organizations and two international regulators was completed. The results indicated that the CNSC's costs of common services (i.e., human resources, information management and technology, finance and administration, legal services, etc) are well within the range of those found in comparable federal organizations and "sister" international agencies.
- Developing a business continuity planning program to ensure minimal or no interruption to the availability of critical services and assets in the event of unforeseen circumstances.
- Developing the first phase of an internal management system manual that articulates the role of the CNSC and its staff, the organization's governance structure and its fundamental business processes. The manual also provides a framework for supporting documentation such as policies, procedures and instructions.

Building Public Trust

Nuclear regulators have the responsibility to regulate the industry in a manner that provides the public with assurances that health, safety, security and the environment are the priority. The CNSC is committed to increasing public confidence in the nuclear regulatory regime through openness, transparency, independence and competence. It has undertaken a variety of measures to improve public knowledge of the CNSC's role as Canada's nuclear regulator.

This commitment requires the CNSC to engage stakeholders above and beyond the public hearings and meetings process through activities such as consultations, information sharing, and a sustainable outreach program.

Protecting and Engaging Communities

One key factor of an effective and sustainable outreach program is to ensure effective communications with communities that are particularly affected by the nuclear industry. Both the Commission and CNSC staff have participated in face-to-face dialogue across the country with concerned citizens.

For example, CNSC staff were heavily involved in the preparation of licensing documents for the public hearings held in Saskatchewan in June 2004. The CNSC regulates six uranium mines in northern Saskatchewan, affecting about 30 mainly Aboriginal communities. These communities want to understand the potential impacts that uranium mining could have on their lands and people. Increased access to the Commission by local communities helps to further this understanding and allows the Commission the opportunity to interact directly with affected communities.

In May 2004, the President and CEO, as well as senior CNSC staff, addressed the Councils of the Municipalities of Kincardine and Saugeen Shores, and participated in several media events. This was part of a broad information and consultation effort on current and pending issues of particular interest to the Bruce peninsula area, namely, power reactors, waste management facilities and financial guarantees.

Building confidence

As part of its international outreach activities, the CNSC collaborated with the Nuclear Energy Agency's (NEA) Committee on Nuclear Regulatory Activities to organize an international workshop entitled “Building, Measuring and Improving Public Confidence in the Nuclear Regulator”. The NEA is an agency of the Organization for Economic Cooperation and Development (OECD).

The workshop was held in Ottawa, Ontario in May 2004, and provided staff from nuclear regulatory organizations from around the world with the opportunity to share information, practices and experiences, and to discuss developments, progress and techniques for nuclear regulatory organizations in communicating with the public.

At the workshop, the CNSC shared its approach to communicating with its stakeholders, including Canada's Aboriginal communities, about the nuclear regulatory regime. The presentation made by a CNSC staff member from the Saskatoon regional office provided specific examples of the CNSC's activities for improving its relationship with local Aboriginal communities, such as communicating in native languages and face-to-face interaction.

Measures of Performance

The CNSC recognizes the importance of being able to measure both the effectiveness and the efficiency of its programs, and has initiated the development of an integrated performance management framework. Effectiveness will be measured by way of selected outcome measures relating to the collective impact of the activities on meeting the mandate of the CNSC.

Efficiency, on the other hand, will be measured through ongoing monitoring of the CNSC's performance against external and internal performance standards relating to individual activities undertaken and their associated outputs.

Outcome Measures

In 2004-2005, the CNSC developed an initial set of seven non-financial indicators based on feasibility, relevance and availability of data. The initial set of indicators is as follows:

Outcome	Indicator
Stakeholders' understanding of the regulatory program	Level of understanding by stakeholders of the regulatory program
High levels of compliance with the regulatory framework	Number and significance of non-compliances
	Proportion of licensees meeting expectations (by safety area where applicable)
	Number of non-authorized activities detected/identified
Low levels of exposure to humans and the environment	Levels of radiation doses to workers and to the public
	Levels of releases of hazardous substances from licensees to the environment
	Number of times regulatory limits are exceeded (workers, public, environment)

These indicators will be further defined, base-level data will be collected, and potential target levels will be explored to monitor the performance of the CNSC against the above-noted outcomes. Under this initiative, the CNSC is also contributing to the Expenditure Management Information System (EMIS) project, coordinated by Treasury Board.

The CNSC currently publishes two significant measures of safe and secure nuclear installations and processes used only for peaceful purposes, the first part of the CNSC's stated ultimate outcome (see the logic model on page 38). These measures are the Radiation Index for nuclear stations, and the CNSC Report Card on Nuclear Power Plant Performance. The CNSC Report Card on Nuclear Power Plant Performance as of January 2005 is available on page 41. For more information on these significant measures, please consult the CNSC's Web site at **www.nuclearsafety.gc.ca**.

Performance Standards

Performance standards have been developed for stakeholders. It is very important to note that as an independent regulator, it is inappropriate for the relationship between licensees and the CNSC to be considered a service; hence there are no service standards. A list of performance standards focusing on the needs and expectations of external stakeholders has been developed and work is progressing on implementing such standards. Internal performance standards have been put in place to monitor and report on the ability of corporate service functions to meet the needs and expectations of internal CNSC clients in supporting the delivery of the overall regulatory program.

External performance standards for the following activities were developed in 2003-2004, and were implemented in 2004-2005. These include:

Activity	Performance standard	Target	2004-2005 results
Access to Information (ATI)			
Respond to requests under the ATI and Privacy Acts	within legislated time periods as stated in the Acts	90%	95.5%
Response to public inquiries			
Acknowledge request	within same business day	100%	100%
Respond to request - low complexity - medium complexity - high complexity	 within same business day within 5 business days within 10 business days	100%	90.5%
External Communications			
Place Public Hearings Advertisements	within deadlines stipulated in the regulations	100%	94%
External Reporting to Central Agencies			
File annual Report on Plans and Priorities and Departmental Performance Report	within required timelines	100%	100%
Invoice Processing			
Pay supplier invoices	within 30 calendar days of receipt of invoice or goods, whichever is the latest	100%	83.6%
Licensing – for requests pertaining to an existing licence, the CNSC will:			
Publish the Records of Proceedings, including Reasons for Decision, upon conclusion of the public hearing	within 30 business days	90%	93%

Helping good people do the right thing

Values and ethics are increasingly recognized as a cornerstone of good governance and leadership in the public and private sectors. How we achieve results for Canadians has become just as important to public confidence as the results themselves. Since the CNSC holds a significant responsibility for public trust in the safe, effective regulation of nuclear energy and materials, having an active, clearly-articulated ethics strategy reinforces our commitment to our mandate.

In 2004, the CNSC's Audit and Ethics Group was mandated to develop such a strategy, perform a rigorous internal audit role, and receive and investigate disclosures of wrongdoing as required by the draft *Public Servants Disclosure Protection Act* (Bill C-11). Designed especially for the CNSC with extensive input from leaders, staff and subject experts, the values and ethics strategy *"Helping good people do the right thing"* was launched in March 2005. It meets government requirements, reflects the spirit and intent of the draft Bill C-11, and includes a formal process for receiving information about alleged wrongdoing in the workplace.

The CNSC's Values and Ethics Strategy was formally launched in March 2005 under the theme *"Helping good people do the right thing."* An active, clearly articulated values and ethics strategy is a key component of sound governance, and provides all CNSC staff with practical tools for making ethical decisions in the course of their work. The strategy also provides guidance for strengthening the CNSC's relationships with licensees and stakeholders.

It also reinforces the CNSC's longstanding culture of employee openness, integrity, and commitment, encourages new channels for workplace dialogue, and provides protection against reprisals.

To help implement the strategy, leaders and staff have been provided with practical tools and advisory services to guide their ethical decision-making. These include publications for staff and management that offer a model for ethical decision-making and case studies.

As the strategy unfolds, the next focus of the CNSC's attention will geared towards our relationships with licensees and the public. The values and ethics initiative will work towards preparing guidance for licensees, contractors, and other stakeholders to guide them in their relationships with the CNSC.

External performance standards for operational activities were developed in 2004-2005, and will be implemented in 2005-2006. These include:

Activity	Performance standard	Target
Compliance		
Verification: upon completion of the verification activity, the CNSC will:		
Issue Type I Inspection Report	within 60 business days	80%
Issue Type II Inspection Report[3]	within 40 business days	80%
Issue Desktop Review Report	within 60 business days	90%
Enforcement: upon an order being made, the CNSC will:		
Confirm, amend, revoke or replace the order (see CNSC Regulatory Guide G-273)	within 10 business days	100%
Licensing: for requests pertaining to an existing licence, the CNSC will:		
Screen the request for completeness and issue notification that the licensing request is/is not complete	within 20 business days	90%
Issue a licensing decision when a public hearing is not required (assuming an environmental assessment under the *Canadian Environmental Assessment Act* (CEAA) is not required)	within 80 business days	80%
Issue a licensing decision when a public hearing is required (assuming an environmental assessment under the CEAA is not required) (see CNSC document INFO-0715)	within 160 business days	90%

[3] In Power Reactors, unless major issues arise, findings from Field Inspections and Control Room Inspections will be reported on a quarterly basis, within 40 business days of end of quarter.