Chapter

6

Canadian Nuclear Safety Commission

Power Reactor Regulation

All of the audit work in this chapter was conducted in accordance with the standards for assurance engagements set by the Canadian Institute of Chartered Accountants. While the Office adopts these standards as the minimum requirement for our audits, we also draw upon the standards and practices of other disciplines.

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Main Points

6.1 Overall, the Canadian Nuclear Safety Commission (CNSC) has made satisfactory progress in response to our recommendations from our December 2000 audit of power reactor regulation. However, progress has been slower than planned in developing a formal, well-articulated risk-management approach to power reactor regulation.

6.2 In response to that audit, CNSC posted an action plan on its Web site and updated it regularly. The action plan called for it to have a risk-based approach in place by the end of 2003. It is implementing a systematic, risk-informed regulatory approach to its activities for the regulation of nuclear substances and uranium mining and processing. However, the CNSC has only recently launched a program to develop a plan by March 2005 that, when implemented, will adopt this approach in its regulation of power reactors.

6.3 The CNSC has made satisfactory progress in implementing a consistent approach to compliance and enforcement within and across the divisions that plan and conduct compliance inspections of power reactors.

6.4 Since our 2000 audit, the CNSC has developed a new scale for rating the performance of power reactor licensees in meeting CNSC's regulatory expectations and has issued key regulatory documents. It has also implemented a process for assigning priorities among regulatory policies, standards, and guides to be developed. It has made satisfactory progress in addressing the human resources issues of capacity, recruitment, and retention of capable staff, and clarification of roles and responsibilities.

Background and other observations

6.5 The CNSC regulates the use of nuclear energy and materials to protect health, safety, the environment, and national security. Since our December 2000 audit, two events occurred that had a significant impact on the CNSC and underscore the importance of its role. The first event was the terrorist attacks on the New York World Trade Centre on September 11, 2001; this prompted an immediate re-evaluation of the security measures at Canada's nuclear facilities, and additional measures were implemented to improve security.

6.6 The second event was the power outage of 14 August 2003 that affected Ontario and the eastern United States. The CNSC participated in a Canada-U.S. joint task force that investigated the cause of the outage. The task force concluded that the nuclear power plants had not triggered or

spread the power system outage and were maintained in a safe, shutdown condition until their restart.

6.7 After reviewing the structure of comparable regulatory organizations, the CNSC decided not to separate the role of CEO from that of chair of the Commission. It restructured the organization along business lines and clarified the roles of chair of the Commission and chief executive officer.

The Canadian Nuclear Safety Commission has responded. The Canadian Nuclear Safety Commission has responded to our observations and informs us that it is continuing with the improvements it began in response to our December 2000 recommendations.

Introduction

6.8 The *Nuclear Safety and Control Act* came into force on 31 May 2000, creating the Canadian Nuclear Safety Commission (CNSC) to replace the Atomic Energy Control Board. Like its predecessor, the CNSC is responsible for regulating the use of nuclear energy and materials in Canada to protect health, safety, security, and the environment. This includes the licensing and regulation of power reactors, the subject of an audit we reported in December 2000.

6.9 The Canadian Nuclear Safety Commission is a technically oriented organization that includes an operational staff component (CNSC) and an independent tribunal component (Commission). The operational component consists of more than 570 staff who conduct audits and inspections of licensed nuclear facilities. They also carry out detailed reviews of licence applications. On the basis of those reviews, the staff make recommendations to the Commission comprising up to seven government-appointed members chaired by the President of the CNSC, which makes the final licensing decisions for nuclear-related activities in Canada.

Darlington Nuclear Generating Station

6.10 In its fiscal year 1999–2000, the CNSC employed 440 staff and its costs totalled $59 million. Its headquarters are in Ottawa, and it maintains a site project office at each of the five nuclear generating stations, where its staff monitor the licensee's compliance with regulations and with the licence conditions. Canada has 22 power reactors: 20 in Ontario, 1 in Quebec, and 1 in New Brunswick. At the time of the follow-up audit discussed in this chapter, the CNSC had about 510 staff; its total budget for the fiscal year 2003–04 was $76 million.

6.11 The activities of licensing and regulating power reactors account for nearly half of the CNSC's resources and represents its most significant responsibilities, given the risks to public health and safety should a major accident occur.

6.12 In its Annual Report for 2001–02, the CNSC highlighted the work it had undertaken in the aftermath of the September 11 terrorist attacks in the United States. Immediately following those events, it had conducted a comprehensive re-evaluation of security measures in place at nuclear facilities. Additional measures were implemented to increase security at Canada's nuclear generating stations and other facilities. The CNSC reported that it would continue investigating possible security measures to ensure the continued safety of Canadians.

6.13 In its Annual Report for 2003–04, the CNSC referred to the power outage of 14 August 2003 that affected Ontario and the eastern United States. A Canada-U.S. joint task force concluded that the nuclear power plants in both countries had not triggered the power outage or its spread. The task force's Nuclear Working Group also concluded that safety functions had been effective and the affected nuclear power plants had been maintained in safe, shutdown conditions until their restart.

Focus of the follow-up

6.14 In December 2000 we reported that the Canadian Nuclear Safety Commission needed to improve its regulatory regime to ensure that it continued to protect the health and safety of Canadians (December 2000 Report, Chapter 27, Canadian Nuclear Safety Commission—Power Reactor Regulation). Following the tabling of our chapter, the House of Commons Standing Committee on Public Accounts (PAC) held a hearing and issued its Seventeenth Report. Its recommendations further supported our observations and recommendations. In response to our audit, reinforced by the PAC report, CNSC posted its action plan, to address the recommendations on power reactor regulation, on its Web site and updated it regularly. In fact, it concluded that the recommendations also applied to other activities, and it undertook to implement the recommended changes across the CNSC, including activities in the regulation of nuclear substances and uranium mining and processing.

6.15 The objective of our follow-up audit was to determine the extent of CNSC's progress on implementing our recommendations to improve its regulatory regime for power reactors. We also wanted to determine its progress on implementing the recommendations in its other service lines: Nuclear Substance Regulation and Nuclear Cycle and Facilities Regulation. We did not examine the security aspect of CNSC's responsibilities. The scope and criteria for this follow-up audit are outlined at the end of the chapter in **About the Follow-Up**.

Observations

Organizational changes since 2000

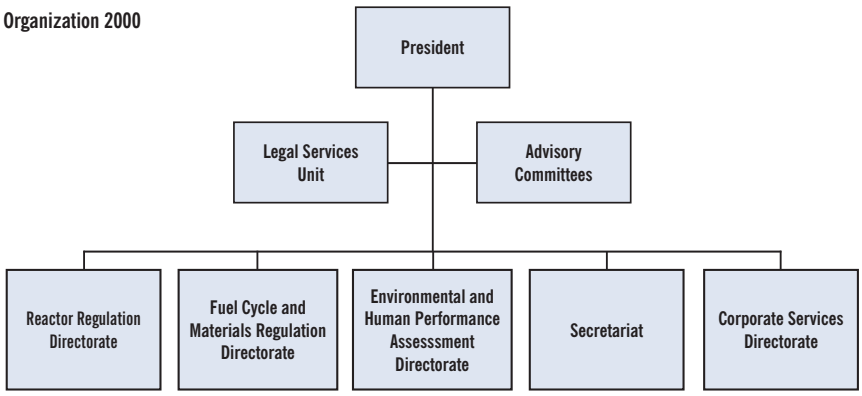
6.16 Since our December 2000 audit, the CNSC has made organizational changes to improve decision making. The Executive Vice-President of Operations is now accountable for five directorates—the three regulatory service lines (power reactors, nuclear substances, and uranium mines and facilities), an assessment and analysis group, and a regulatory documents and program improvement group (Exhibit 6.1).

6.17 The CNSC also formed a secretariat that is separate from the operational staff groups and that provides support to the Commission members. The Commission Secretary heads the secretariat and has a mandate to maintain the separation between the CNSC operations staff and the Commission members. The changes to the organization have improved CNSC's operations and provided separation between the operations and support functions of the CNSC and the Commission.

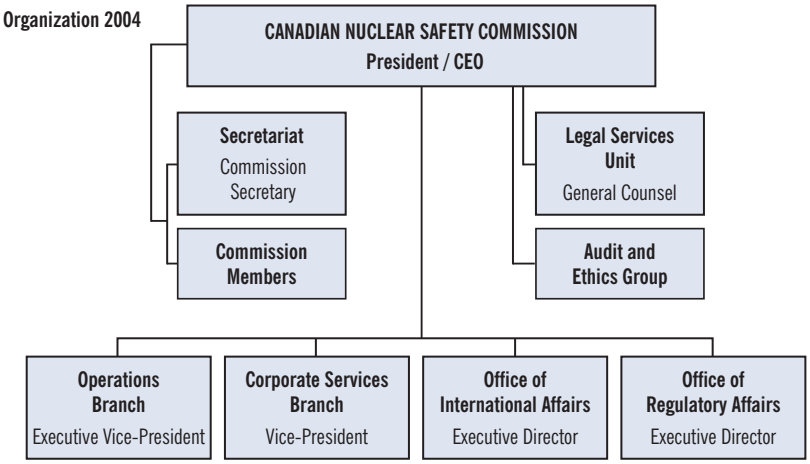
6.18 The CNSC also developed a revised program to recover its costs, with new fees regulations, which became effective in July 2003. The new regulations are intended to make the financing of CNSC programs more equitable, in that licensees pay all or part of the costs of regulatory activities. The new fee structure requires the CNSC to inform licensees about its

planned regulatory activities, the costs of those activities, and the applicable fees, before each fiscal year when the fees are to take effect. This will impose greater discipline on regulatory activities and move the CNSC toward a more risk-based approach to regulation. With fees based largely on planned work activities, licensees will expect the CNSC to demonstrate that it is directing its resources to licensing and compliance activities in areas of higher risk and priority.

Exhibit 6.1 **CNSC organization in 2000 and 2004**



Source: CNSC Annual Report 2000-01



Source: CNSC Annual Report 2003-04

Risk assessment and performance reporting

6.19 In 2000 we reported that

- the CNSC's regulatory activities were not based on a rigorous, well-documented system of risk analysis; and
- its ratings of the safety performance of licensees were not clear and understandable to all stakeholders.

6.20 CNSC staff assess the programs and performance of each licensee in meeting its regulatory expectations. CNSC refers to this as safety performance. It covers nine areas: operating performance, design adequacy, equipment fitness for service, emergency preparedness, environmental performance, radiation protection, nuclear security, safeguards, and performance assurance.

Implementing a systematic, risk-informed approach to regulatory activities

6.21 In 2000 we expected that the CNSC would base its regulatory activities on an analysis of relevant risks, the results of previous regulatory activities, and a rigorous, well-documented process linking activities to required results. A few CNSC divisions had developed formal approaches to risk analysis as a basis for proposing regulatory activity. Divisions involved in regulation of power reactors, however, had used an intuitive approach, relying on the judgment and expertise of staff. Safety performance indicators were not yet applied along with judgment and expertise in any systematic, integrated way to determine the nature or level of the work to be done. Without this type of analysis, the CNSC could not demonstrate whether it was doing enough or too much work in any area and whether it was overstaffed or understaffed.

6.22 In this follow-up audit we found that the Operations Branch had decided to implement an integrated, risk-informed approach to regulatory activities in phases, by branch service line. It started with the regulation of nuclear substances, then the regulation of uranium mining and processing. The next phase is to apply the approach to power reactor regulation; the final phase will integrate the allocation of resources on a risk-informed basis across the Operations Branch.

Satisfactory progress in regulating activities for nuclear substances and uranium mining and processing

6.23 **Nuclear substances.** The Directorate of Nuclear Substance Regulation conducts licensing and compliance activities for about 3,500 licences, classified into 90 types of use. These licences cover nuclear substances such as radioisotopes for medical uses and radiation devices widely used in research and industry. The Directorate has developed and is implementing a systematic approach that ranks risks and assigns priority and resources according to risk level. The risk management program for the Directorate is to be implemented over several years.

6.24 The 90 use-types were ranked in three distinct risk groups. Based on their safety performance, licensees were assigned to a risk group. The ranking is used to determine the levels of effort and resources needed to manage licensing and compliance activities, which include verification, enforcement, and promotion of licensees to a better ranking. Based on rankings, the Directorate has established the levels of resources and effort needed in compliance inspection activities for all use-types.

6.25 **Uranium mining and processing.** The Directorate of Nuclear Cycle and Facilities Regulation developed a systematic, risk-informed process to help managers decide where to allocate resources. It used a series of internal

workshops and extensive consultation with facility and subject matter experts in the Operations Branch to rank the licensed facilities.

6.26 The Directorate then recommended that regulatory effort be allocated to each facility's licensing cycle based on the facility's ranking. The recommendations will serve as a guide for the licensing and technical specialists to decide on the appropriate regulatory activities for each licensee. Using this structured approach in the planning of regulatory effort should improve the allocation of resources within the Directorate.

Developing a plan to improve power reactor regulation

6.27 Project officers and technical specialists together assess each nuclear facility to obtain assurance that the level of risk to health, safety, and the environment remains within the terms of the facility's licence. Specialists review documentation and conduct audits to assess the quality and reliability of key reactor components as well as the facility's safety analysis, radiation protection, operating performance, safety procedures, and management. The review is linked to the licence-renewal cycle and is intended to cover all of the CNSC's regulatory requirements for the facility.

6.28 In January 2004, the CNSC announced appointments in the Operations Branch to address the need for an effective and efficient, risk-based program for the regulation of power reactors. In May 2004 it established the Power Reactor Regulation Improvement Program to examine all aspects of regulation and establish a plan for improvement. The plan, when implemented, will base levels of regulatory activity on a formal, well-articulated approach to risk management. Six teams of directors were formed to propose plans for improvements in key areas:

- Planning and reporting
- Process management—compliance
- Process management—licensing
- Risk-informed approach
- Information management and communication
- Leadership/management and human resources

6.29 The teams began meeting in June 2004 to confirm areas for assessment. Proposals for areas for improvements were reviewed in September; an improvement plan is to be prepared by March 2005.

6.30 Although recent developments are encouraging, the original action plan posted by the CNSC on its Web site indicated that a risk-based approach would be implemented by the end of 2003. We are concerned about the slow progress and the absence of an approved plan setting out the approach, resources, accountabilities, deliverables, and timelines for developing a systematic, risk-informed approach to allocating the appropriate regulatory effort for each power reactor.

No formal plan for integration across the Operations Branch

6.31 The CNSC intends to ultimately integrate the risk-informed approach to regulatory activities for all its service lines to support a broad range of management decisions across the Operations Branch. In October 2002, the target date to complete this integration was December 2003. Achieving an integrated approach across the Operations Branch will depend on the success of improvements in the regulation of power reactors.

6.32 One of the working groups on the Power Reactor Regulation Improvement Program is developing guidance on risk management for regulatory activities across the Branch. This guidance will form part of the improvement plan to be in place by March 2005 that will include desired results, milestones, and accountabilities.

New safety performance ratings have improved communication with licensees

6.33 Assessing licensees' safety performance against the CNSC's requirements and expectations is an important element of the licensing process. The CNSC's staff rate performance against the requirements set out in the *Nuclear Safety and Control Act* and the expectations outlined in regulatory documents. Safety performance ratings of power reactor licensees are included as "report cards" in Commission members' documents for review at public hearings when licences are being renewed or reviewed. In addition, performance ratings are presented annually in the Annual Report on the Canadian Nuclear Power Industry, which is discussed at a Commission meeting and posted on the CNSC's Web site.

6.34 In 2000 we noted that in its licensing reports the CNSC assessed and categorized various aspects of performance as acceptable, conditionally acceptable, or unacceptable. However, it arrived at those ratings using criteria that were subjective. For example, "conditionally acceptable" did not convey whether and to what degree the licensee was managing safety properly and whether the licensee's action plans and progress were satisfactory. This lack of clarity contributed to uncertainty and misunderstanding about the adequacy of the licensee's safety performance.

6.35 In 2002 the CNSC introduced a new system for rating the safety performance of nuclear power plants. In the nine safety areas previously discussed, staff assess licensees' programs and their implementation according to five ratings:

- A—Exceeds requirements (consistently exceeds applicable CNSC requirements and expectations)
- B—Meets requirements (meets the intent or objectives of CNSC requirements and expectations)
- C—Below requirements (performance below requirements; improvement needed)
- D—Significantly below requirements (continued poor performance; corrective action required)

- E—Unacceptable (breakdown or loss of control; more stringent enforcement action required)

6.36 Whether the CNSC is conducting a site inspection or a comprehensive review, each assessment requires a performance rating. The ratings for each licensee are accumulated and become part of the overall ranking of its performance in each safety-related area.

6.37 The new rating scale has improved the clarity, transparency, and consistency of performance ratings to licensees, CNSC staff, and the public. Although it is a substantial improvement over the previous system, further refinements are needed to improve communication between the CNSC and licensees.

6.38 For example, some licensees do not have a clear understanding of the rating scale and how to move up the scale to a better rating. In January 2004, they asked the CNSC to clarify the basis for the ratings they had been given and to explain what improvements were needed to achieve better ratings. The CNSC met with those licensees in summer 2004 to respond to their concerns.

Compliance and enforcement

6.39 In 2000 we reported that the compliance and enforcement system had not been applied consistently across the CNSC and further work was needed to develop a more results-based and systematic approach. The CNSC needs regulatory documents, including policies, standards, and guides, to clearly explain its regulatory requirements to staff, licensees, and the public. The documents were either incomplete or had not been revised after the *Nuclear Safety and Control Act* went into effect.

Satisfactory progress on an integrated approach to compliance inspections

6.40 In December 2000 we noted that in response to internal audit recommendations, the CNSC had approved a compliance program policy and had developed a plan to implement it consistently across the CNSC. Compliance and enforcement programs were to identify regulatory requirements and communicate them to licensees; compliance and enforcement actions were to be applied consistently and effectively throughout the organization. According to the CNSC, this would lead to a more results-based, systematic approach, taking into account a licensee's past compliance history when deciding whether to increase or decrease the level of scrutiny in regulatory activities.

6.41 In 2003, the CNSC's Compliance and Licensing Director at one nuclear power facility initiated quarterly meetings for representatives of all divisions participating in inspections and audits at the facility. This initiative was a successful pilot project for co-ordinating work and communicating well across the licensing group and technical groups. Based on the favourable results of the pilot project, the Power Reactor Regulation Directorate established a requirement that all compliance and licensing divisions conduct similar quarterly meetings.

6.42 In our follow-up we found that the Operations Branch has made considerable progress toward defining a consistent compliance program for power reactors. It had compliance and licensing divisions meet quarterly to co-ordinate inspection plans for each site, and it assigned to division directors the responsibility for managing the inspection programs at their stations. As part of the new cost-recovery program, division directors explained 2003 year-end variances in their inspection programs with licensees. CNSC has informed us that it intends to continue this practice annually. In addition, directors of compliance and licensing divisions have started using consistent planning tools to identify significant issues at facility sites, and they formally take account of the facilities' past performance in shaping their compliance programs. In September 2004, the compliance and licensing divisions and other participating divisions met for the first time to review compliance and inspection programs across nuclear power stations.

6.43 The Power Reactor Regulation Improvement Plan is intended to contribute further to the compliance inspection programs by clarifying roles and responsibilities between divisions, developing a plan for documenting a risk-based approach to resource allocation, and resolving the inconsistencies that remain in the management of inspection programs.

Key documents published and system implemented for prioritizing others

6.44 The *Nuclear Safety and Control Act* was passed in 1997 and came into force on 31 May 2000. In December 2000 we reported that the CNSC had revised or developed only some of the regulatory documents that were needed to make the regulatory system transparent and effective, which would provide staff and licensees with a clear understanding of the regulatory requirements, the processes for monitoring compliance, and the rules of enforcement.

6.45 In April 2003, the CNSC formed the Regulatory Documents Steering Committee, comprising one director from each of the five Operations Branch directorates responsible for the service lines and technical lines. The Committee sets priorities for developing regulatory documents, and it monitors the production of documents in accordance with the approved process.

6.46 The CNSC has clarified the definitions of the types of regulatory documents, which include policies, standards, guides, and notices. It has published about 20 key regulatory documents; another 15 have undergone public consultation; and 10 are currently open for consultation. The Steering Committee has developed a list of 31 other high-priority documents. The purpose and scope statements for all of the remaining high-priority documents are nearing finalization.

6.47 These steps represent satisfactory progress since our audit in 2000.

6.48 In the past, the CNSC was inclined to develop its own regulatory documents rather than draw on the safety standards of other agencies, such as the International Atomic Energy Agency. In 2003 the CNSC informed the Agency that it intended to adopt or adapt existing documents in order to harmonize its regulations with world-wide standards.

Human resources management

Satisfactory progress on addressing human resources capacity

6.49 In 2000, we reported that the CNSC faced difficulties in recruiting and retaining scientific and technical staff. In May 2000, many positions in the organization were vacant—some of them key positions.

6.50 In addition to staff shortages, the CNSC, with its aging employee population, was facing a loss not only of leadership but also of high-level expertise in the nuclear industry, which had been acquired over many years.

6.51 Since our audit, the CNSC has strengthened its human resources capacity. It established an internship program for power reactor regulation in 2001 to hire university graduates. All eight candidates completed their two-year rotation assignments, and all accepted positions in the organization. Another group of interns started in 2003, and a third group started in 2004. CNSC plans to recruit new candidates for the internship program annually. One important aspect of the program is the placement and retention of interns as permanent employees. To date, CNSC has successfully retained them all. CNSC informed us that it recognizes that recruitment and retention of qualified staff is an ongoing challenge.

6.52 As a result of changes in the nuclear power industry and other fields of technology, well-qualified and experienced candidates became available for positions with the CNSC. The vacancy rate in the Power Reactor Regulation service line was at eight percent in 2000; by 2003 almost all of the vacant positions had been filled. Further, management was confident of attracting capable trainees and experienced candidates at more senior levels.

6.53 Although the CNSC has experienced a high level of turnover at the senior management and technical levels since 2000, through retirements and departures, the impact on the organization has been less than expected. This is due partly to the development of new regulations and a more structured management as well as the recruitment programs.

6.54 In 2001 the Human Resources Directorate developed a workforce sustainability strategy. This strategy recognized the aging of the workforce and the importance of ensuring that the CNSC had the technical and management talent it needed. At the time of our follow-up audit, the Directorate had numerous recruitment and retention initiatives planned and underway to address these issues.

A need to clarify accountability for communications with licensees

6.55 In 2000, the respective roles and accountabilities of the site project offices and the technical specialists at headquarters were not clearly defined and understood. For example, staff at site project offices were not certain who was responsible for taking the lead on specific issues, so the lead role was often assumed on an ad hoc basis. In the absence of a clear understanding and effective implementation of the centralized approach to planning and reporting, accountability was fragmented. It was difficult to reach consensus on the safety performance of each nuclear facility.

6.56 In our follow-up, we found that the respective roles and responsibilities of the CNSC's site project offices and its headquarters were more clearly defined and understood, due in large part to the restructuring of the organization in 2002. At that time, the Operations Branch assigned to each nuclear power facility a compliance and licensing director responsible for managing inspection activities at the site and related issues at headquarters in Ottawa. This has helped staff at both the site project offices and headquarters gain a clearer understanding of their respective roles and responsibilities.

6.57 The Power Reactor Regulation Improvement Program has several initiatives intended to strengthen the management of regulatory activities—for example, clarifying responsibilities and designating a single point of contact for communication with licensees, and planning and reporting on compliance activities with more consistency.

Clarifying the President's dual role

6.58 We noted in 2000 that the President of the CNSC was both the chair of the appointed Commission and the chief executive officer of operations staff, as required by the *Nuclear Safety and Control Act* enacted in 2000. At that time, we found that the combining of both functions contributed to long delays in implementing change and a lack of understanding between Commission members and CNSC staff on some regulatory issues.

6.59 In our follow-up we noted that to address these problems, in April 2001, the Secretariat was created to enhance the independence of the role of the President and the Commission. The Secretariat provides advice and support to Commission members and the President. This independence was further strengthened in July 2004 when the CNSC created the position of Executive Vice-President, Operations Branch. The Executive Vice-President acts as CEO when the President is not available to discuss an item with a licensee or when, in the President's view, it is inappropriate to do so because the matter for discussion is pending a Commission hearing. As chair of the Commission, the President will not meet with a licensee to discuss a matter to be heard before the Commission for up to 60 days before a hearing in order to avoid any perception of undue influence or lack of transparency.

6.60 The CNSC conducted a benchmarking study of domestic and international tribunals and found no comparable organizations that separate the role of chair of the tribunal from the role of the organization's chief executive officer. The CNSC told us that separating these roles could, in its view, seriously impair the Commission's ability to function and it could find no compelling reason to separate the two roles at this time. A few licensees told us that the President's dual role as chair of the Commission and chief executive officer of CNSC operations still presents a problem in resolving some issues prior to a Commission hearing. CNSC, however, continues to believe that licensees have full access to the President and the Executive Vice-President at all appropriate times.

Conclusion

6.61 Overall, the CNSC has made satisfactory progress in implementing several of the recommendations in our 2000 audit. The progress of a systematic, risk-informed approach to regulating nuclear substances and uranium mining and processing has been satisfactory, but developing the same approach to regulating power reactors has been slower than planned. A formal plan, due by March 2005, is expected to help in assigning levels of regulatory effort on the basis of well-articulated risk management, once it has been implemented.

6.62 The CNSC is making satisfactory progress on a compliance program to be applied consistently across nuclear-power-reactor facilities. Progress on assigning clear accountability for managing regulatory activities at power reactor facilities to the compliance and licensing directors is also satisfactory.

6.63 The CNSC has made satisfactory progress in addressing the need for regulatory documents. It issued key regulatory documents and put in place a process for assigning priorities among new regulatory policies, standards, and guides to be developed.

6.64 The CNSC has developed a new scale for rating the safety performance of power reactor licensees, which has improved its communication with them. It has committed to improving the consistency of its ratings and to communicating their basis more effectively to its staff and its licensees, along with the measures by which licensees can improve their ratings.

6.65 The CNSC has decided not to separate the roles of chair of the Commission and chief executive officer of CNSC operations at this time, and it has clarified its position on this issue.

6.66 Actions taken to address our recommendations on human resources management have been satisfactory.

Canadian Nuclear Safety Commission's response. The Canadian Nuclear Safety Commission remains strongly committed to ongoing improvements in the area of the focus of this audit, power reactor regulation, as well as in all other areas of regulation within the CNSC's mandate. In support of this, we have welcomed the efforts of the Auditor General in assessing the CNSC's performance in power reactor regulation in a systematic manner, in identifying strengths and weaknesses, and in providing advice on how improvements can be made. We believe the findings are fair and are consistent with the CNSC's pursuit of continuous improvement.

About the Follow-Up

Objectives

The objective of this follow-up audit was to assess the progress the CNSC has made since our previous audit in 2000 to improve its regulatory regime for power reactors to ensure that it continues to protect the health and safety of Canadians.

Our previous audit (December 2000 Report, Chapter 27) concluded that the CNSC's regulatory activities were not based on a rigorous, well-documented system of risk analysis, and the ratings it assigned to licensees for safety performance were not clear. We concluded that if the CNSC strengthened its risk analysis, completed the changes it had begun in compliance and enforcement, and took the necessary steps to ensure that it would have the human resource capacity needed in the future, the regulatory regime for power reactors would achieve its safety objective and other objectives.

Scope and approach

Our follow-up audit covered the recommendations in our December 2000 Report. The CNSC management decided that many of our recommendations on power reactor regulation also applied to other areas of its mandate. As a result, management has been implementing changes in the other service lines—Nuclear Substance Regulation and Nuclear Cycle and Facilities Regulation.

While our follow-up audit took into account CNSC's overall progress in implementing a risk-informed regulatory approach in other areas of its mandate, our primary focus was on the licensing and regulation of power reactors.

We interviewed senior managers and key staff responsible for nuclear regulatory activities in each of the five directorates in the Operations Branch and senior officials in the Corporate Services Branch. Included in the interviews were compliance and licensing directors responsible for site offices located at nuclear power stations. We also interviewed licensees, many of whom had been included in the 2000 audit, for their perspective on the CNSC's progress on the audit recommendations. We reviewed extensive documentation relating to the audit issues and numerous reports on other nuclear regulatory agencies. We reviewed key systems and processes used by the CNSC to plan, implement, and report on regulatory activities. During the follow-up, we kept senior management informed on our progress and our preliminary findings.

Most of our audit was conducted in December 2003 and January 2004. However, we also conducted limited audit work in September 2004 to assess more recent progress.

Criteria

We expected that the CNSC would have made satisfactory progress in implementing our recommendations. We assessed its progress using criteria consistent with and drawn from our criteria in the original audit.

CNSC's regulatory programs should be designed, organized, and implemented on the basis of

- a comprehensive analysis of health and safety risks, and sufficient staff, expertise, and resources;
- a comprehensive analysis of other regulatory regimes to address identified risks, including an assessment of the capabilities of industry and government, consultations with stakeholders, costs and benefits, and policies for maintaining transparency and public access to information;
- a clear statement of the respective responsibilities of government, industry, and other parties, and ongoing consultations with stakeholders;
- clear and comprehensive performance objectives or goals for each of the areas subject to regulation;
- clearly defined key performance data, measurement procedures and data to be used, and policies for government to have timely and unimpeded access to all necessary data;

- clear policies and procedures for ensuring compliance with and enforcement of Canadian laws and international standards (to which CNSC has agreed), for resolving complaints, and for reporting and remedying regulatory failures, including any penalties that may be imposed; and
- clear, accurate, comprehensive, and timely reporting to management and Parliament on the relevance of regulations, their effectiveness, and the cost of the programs.

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