



Audit of the Canadian Nuclear Safety Commission's Process for the Certification of Persons Working at Nuclear Power Plants

Office of Audit and Ethics

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Executive Summary

Background

The *Audit of the Canadian Nuclear Safety Commission's Process for the Certification of Persons Working at Nuclear Power Plants* was part of the Office of Audit and Ethics' (OAE) approved Risk-Based Audit Plan for 2012–13.

Audit objective, scope and approach

The objective of this audit was to determine the adequacy of the Canadian Nuclear Safety Commission's (CNSC) processes for overseeing nuclear power plant (NPP) licensees' compliance with personnel certification regulations.

The audit examined:

- the controls in place for the review of certification requests submitted by licence holders, to ensure that NPP personnel possess the knowledge required to operate nuclear plants effectively
- the planning, conducting and reporting of compliance inspections and the personnel certification process, as well as follow-up on items requiring corrective actions and associated recommendations

The audit scope included the oversight activities for the certification of personnel working at NPPs and covered the fiscal years 2010–11 and 2011–12. The processes for overseeing certification for exposure device operators and operators in Class II radiation protection were not included in the audit scope.

Audit field work was conducted between December 2012 and March 2013. The work included interviews with management and staff, reviews of relevant CNSC documents, and detailed testing of sample files, including those that pertained to certification requests or to compliance operations conducted by the Personnel Certification Division (PCD).

Summary of observations

- The CNSC's governance of the oversight of licensees' compliance with personnel certification regulations is adequate, and the PCD's mandate to certify personnel working at NPPs is clear. However, opportunities exist to improve the understanding within the PCD of the new role and responsibility of examination and certification officers (ECOs) to support CNSC inspections of licensee-run certification examinations.
- The CNSC has published regulatory guidance documentation and has established CNSC-wide processes, procedures and tools adequate for overseeing NPP licensees' compliance with certification examination and training requirements. However, existing procedures and tools do not effectively support the timely assessment of licensee requests to certify NPP workers.

- Opportunities exist for the CNSC to strengthen the processes, procedures and tools used to capture, document, track and monitor:
 - requests for certification
 - certification decisions of the designated officer (DO)
 - inspection results and corrective actions that relate to either licensee training or examination activities
- Opportunities exist for the PCD to strengthen its divisional-level processes, procedures and guidance documentation to include up-to-date and more detailed guidance to ECOs on:
 - PCD standards for assessing certification applications
 - certification and inspection file documentation standards
 - the obtaining of timely information on the results of CNSC inspections of licensee certification examination and training programs
- The CNSC's recent move to the use of CNSC-wide processes for planning, conducting and reporting on inspections of licensee-run certification examinations is progressing, although the PCD's internal processes and tools do not yet ensure that a consistent level of support is provided to these inspections or that certification-related information is integrated into the annual risk-based inspection planning.

Overall conclusion

The existing governance, control and risk management processes adequately support the CNSC's oversight of NPP compliance with regulatory requirements for personnel certification and training activities. However, opportunities exist to improve the design and application of the governance and control processes and to strengthen the support they provide to the CNSC's regulatory oversight of NPPs.

The findings and recommendations have been communicated to, and agreed to by, Technical Support Branch management. Management action plans are scheduled for implementation no later than Q4 2014–15.

1. Introduction

1.1. Background

The Canadian Nuclear Safety Commission regulates the use of nuclear energy and materials to protect health, safety, security and the environment, and to implement Canada's international commitments on the peaceful use of nuclear energy; and to disseminate objective scientific, technical and regulatory information to the public. As part of its regulatory oversight mandate, the CNSC ensures that each key safety-related position in a nuclear power plant (NPP) (or other Class I nuclear facility) is staffed by fully qualified personnel.

The *Nuclear Safety and Control Act* (NSCA) authorizes the CNSC to make regulations respecting the qualifications for, and the training, examination, certification and decertification of, nuclear energy workers and other persons employed where a nuclear substance or prescribed equipment is produced, used, possessed, packaged, transported, stored or disposed of. The NSCA also allows the Commission or a designated officer (DO) to certify and decertify these persons as qualified to carry out their duties under the Act or the duties of their employment.

The *General Nuclear Safety and Control Regulations* obligate licensees to train, and to ensure the presence of, a sufficient number of qualified workers to carry out the licensed activity safely. As well, the *Class I Nuclear Facilities Regulations* prescribe that the Commission, or its DO, may certify a person working at an NPP after receiving from the licensee an application stating that the person (a) meets the applicable qualification requirements referred to in the licence, (b) has successfully completed the applicable training program and examination referred to in the licence, and (c) is capable, in the licensee's opinion, of performing the duties of the position.

Additionally, the regulations note that the DO may renew a certification after receiving from a licensee an application stating that the certified person (a) has safely and competently performed the duties of the position for which he or she was certified, (b) continues to receive the applicable training referred to in the licence, (c) has successfully completed the applicable requalification tests referred to in the licence for renewing the certification, and (d) is capable, in the licensee's opinion, of performing the duties of the position.

CNSC regulatory oversight

In addition to assuring that licensee training programs are adequate for certified positions, CNSC staff impose additional requirements for positions requiring certification. These include education and experience requirements, successful completion of independent knowledge-based and performance-based examinations, requirements to perform duties under supervision, and successful completion of a management interview. The CNSC regulatory oversight regime ensures that these additional requirements meet CNSC expectations.

In February 2008, the Commission issued regulatory document RD-204, *Certification of Persons Working at Nuclear Power Plants*, which noted that “licensees are first and foremost responsible for the safe operation of their respective NPPs”. Until 2008, CNSC staff directly administered certification examinations of persons at NPPs who wished to hold one of the positions mentioned in the facilities’ operating licences. (For NPPs, the facility operating licences require that persons appointed to the positions of senior health physicist, plant shift supervisor, control room shift supervisor, reactor operator and Unit 0 control room operator have CNSC certification.)

Under RD-204, NPP licensees became responsible for training and testing their workers in accordance with current regulatory requirements to ensure that they are fully qualified to perform the duties of their positions. The CNSC’s regulatory oversight of licensee personnel now involves monitoring, verifying and enforcing licensee compliance with regulatory requirements for all phases of certification of their employees (i.e., training, examination and requalification). It should be noted that, although RD-204 applies to all certified positions at NPPs, Personnel Certification Division (PCD) staff continue to administer certification examinations of NPP candidates for the position of senior health physicist.

Although RD-204 outlines the key regulatory requirements for licensees related to the certification of NPP workers, additional guidance documents have been developed that specify the requirements with which NPP licensees must comply when planning, developing, administering and grading their written and oral certification examinations:

- *Requirements and Guidelines for Written and Oral Certification Examinations for Shift Personnel at Nuclear Power Plants* (EG1), published in July 2005
- *Requirements and Guidelines for Simulator-Based Certification Examinations for Shift Personnel at Nuclear Power Plants* (EG2), published in June 2004
- *Requirements for the Requalification Testing of Certified Shift Personnel at Nuclear Power Plants* (“requalification requirements document”), published in May 2009

CNSC staff are currently in the process of replacing EG1 and EG2 with REGDOC-2.2.3, which is being prepared for public comment.¹

CNSC organizational context

The CNSC’s Directorate of Safety Management (DSM) manages the Commission’s oversight responsibilities related to certification and training. In the DSM, the PCD manages certification oversight activities, while the Training Program Evaluation Division (TPED) supports the CNSC’s NPP licensing and compliance oversight on matters related to NPP licensee training programs.

¹ REGDOC-2.2.3, *Personnel Certification*, was published in July 2014.

Within its mandate to manage the Commission's certification activities,² the PCD is responsible for evaluating certification applications for the key operating positions at NPPs and for supporting the CNSC's licensing and compliance oversight of NPPs on matters related to licensee certification programs and examinations.

Table 1 shows the positions that require certification and the number of certification applications received and reviewed for the fiscal years (FYs) covered by the audit.

Table 1: Positions requiring certification, along with certification applications received and reviewed *

Position	Applications, FY 2010–11	Applications, FY 2011–12
Reactor operator	50	27
Unit 0 control room operator	8	7
Control room shift supervisor	15	5
Plant shift supervisor	21	6
Senior health physicist	7	3
Total for NPPs	101	48

* The number of certification transactions is solely based on the number of applications received from the NPPs and is beyond CNSC control.

1.2. Authority

The *Audit of the Canadian Nuclear Safety Commission's Process for the Certification of Persons Working at Nuclear Power Plants* was part of the Office of Audit and Ethics' (OAE) approved Risk-Based Audit Plan for 2012–13.

1.3. Objectives and scope

The objective of this audit was to determine the adequacy of the CNSC's processes for certifying persons working at NPPs and for overseeing licensees' compliance with personnel certification regulations.

The audit scope included the NPP personnel certifications and related oversight activities covering the fiscal years 2010–11 and 2011–12. The processes for the

² The PCD is also responsible for supporting the CNSC's oversight of research reactors in Canada and for evaluating certification applications for key operating positions at research reactors and for exposure device operators. These activities are not covered under this audit's scope.

certification of exposure device operators and operators in Class II radiation protection were not included in the audit scope.

1.4. Risk analysis

During the audit planning phase, a risk analysis was conducted to identify the potential risks faced by the audit entity and to evaluate and prioritize their relevance to the audit objective.

The risk analysis was based on documentation review and preliminary interviews with CNSC representatives. It identified the following areas of potential risk for examination during the audit:

- the adequacy of the CNSC's governance process for certifying NPP personnel and overseeing NPP licensees' compliance with personnel certification regulations
- the adequacy of the CNSC's control mechanisms (i.e., processes, procedures, guidance, training and tools) used for certifying NPP personnel and overseeing NPP licensees' compliance with personnel certification regulations
- the adequacy of the CNSC's processes to support the assessment of NPP certification requests and inspection of NPP licensees' compliance with personnel certification regulations

1.5. Audit criteria

Audit criteria were established to assess the adequacy of controls in place to mitigate the identified potential risks. The audit criteria are based on the Office of the Comptroller General's *Audit Criteria Related to the Management Accountability Framework* and other established criteria, such as regulatory and guidance documents (RD-204, EG1, EG2 and the requalification requirements document). The audit criteria used are outlined in appendix A of this report.

1.6. Approach and methodology

Audit field work was conducted from December 2012 to March 2013 and included interviews with management and staff, reviews of relevant CNSC documents, and detailed testing of sample files, including those that pertained to certification requests or to compliance verification activities conducted by the PCD.

Audit findings were communicated to, and discussed with, auditee management and other CNSC internal stakeholders, as required.

1.7. Statement of conformance

In our opinion, sufficient and appropriate audit procedures were conducted to support the accuracy of the observations and conclusions in this report. The findings and conclusions are based on a comparison of the conditions, as they existed at the time of the audit, against established audit criteria that were agreed upon with management.

This audit conforms to the *Internal Auditing Standards for the Government of Canada*, as supported by the results of the OAE quality assurance and improvement program.

2. Audit Observations and Recommendations

2.1. Adequacy of the CNSC's governance processes for certifying NPP personnel and overseeing NPP compliance with certification regulations

The audit examined the governance structure in place to support the CNSC's NPP personnel certification and compliance activities, including the mandates, roles and responsibilities of CNSC organizational units involved in these activities.

2.1.1. Governance structure

The CNSC has established appropriate governance processes for certifying NPP personnel and overseeing compliance with certification regulations.

The CNSC's overall governance structure includes both the Commission and the CNSC scientific, technical and professional staff. CNSC staff review applications for licences according to regulatory requirements, make recommendations to the Commission, and enforce compliance with the NSCA, regulations and any licence conditions imposed by the Commission.

Under the vice-president of the Technical Support Branch, the director general (DG) of the DSM is accountable for providing the CNSC with technical expertise required to define and establish consistent regulatory requirements and criteria for certified personnel in nuclear facilities regarding training, examination and qualification.

The Commission has named DOs for the certification and decertification of persons working at NPPs. Currently, the director of the DSM's PCD acts as DO for certification decisions related to health physicists, and the DG-DSM acts as DO for decisions regarding authorized control room personnel. PCD staff support the DOs by providing information, analysis and assessment of licensee certification applications, along with a recommendation to either approve or deny the requested certification.

Reporting to the executive vice-president of the Regulatory Operations Branch (ROB) and the chief regulatory officer, the DG of the Directorate of Power Reactor Regulation (DPRR) is accountable for all other regulatory decisions and recommendations related to certification and training at NPPs, with input and recommendations from the DSM's training and certification specialists.

The audit found that the governance structure in place for certifying NPP personnel and overseeing NPP licensees' compliance with personnel certification regulations is adequate and managed within the CNSC's overall governance framework.

2.1.2. Mandates, roles and responsibilities

The roles and responsibilities for overseeing NPP personnel certification regulations are clearly defined and understood. However, acceptance and understanding of the PCD's new compliance role (i.e., supporting inspections rather than administering exams) varies.

The audit found that the mandate, role and responsibility of ROB's DPRR to lead NPP licensing and compliance activities for the CNSC, with input and support from technical specialists in the Technical Support Branch, is clear and well documented. Interviews revealed a common understanding of this role across all interviewees.

Generic work descriptions that describe, at a high level, the respective duties and responsibilities of CNSC staff involved in overseeing NPP personnel certification regulations are readily available on the CNSC Intranet.

We found that the mandated role of the DSM's TPED to assist the DPRR in performing analysis of NPP licensees' proposed training programs at the licensing stage and in conducting inspections of NPP licensees' training activities is clear and well documented. Interviews revealed a common understanding of this role across all interviewees.

Within the PCD, examination and certification officers (ECOs) have a clear and well-defined role to assist DPRR in evaluating licensee certification examination programs to ensure they meet CNSC standards, as well as in conducting inspections of licensee certification examination activities.

We were advised that the CNSC incrementally implemented the RD-204 changes to the certification examination process. The PCD began training NPP licensees in the examination administration process in advance of the 2009 regulatory changes. In February 2009, the Commission transferred responsibility for the design and development, conduct, and grading of certification examinations to NPP licensees, and the PCD began to pilot its new compliance verification activities by co-administering certification examinations with the licensees.

The pilot was completed in 2011 with the full transfer of responsibilities for examination administration to NPP licensees, along with the creation of the CNSC Personnel Certification Compliance Verification Strategy. Under this strategy, PCD ECOs attend selected licensee simulator examinations; the ECOs' role is to support the CNSC's independent inspection of the licensee-run exams.

Notwithstanding a common understanding of the PCD's current role to support the DPRR in inspections of licensee-run examinations of NPP candidates, interviews revealed that acceptance of this new role varies and that ECOs have

an inconsistent understanding of how to carry out their new responsibilities. We noted that there are no written and detailed performance expectations within the PCD that describe this new role.

With respect to the PCD DO, the audit found that the DO's role and overall responsibilities are well documented and understood by both the Director PCD and the DG-DSM, although interviews revealed that neither received DO-related training prior to assuming the role. We were advised that a CNSC Harmonized Plan initiative is currently underway to review the CNSC's processes for selecting and assigning DO roles and responsibilities.

Recommendation 1

The PCD should ensure that performance expectations communicated to ECOs include clear information on (a) their certification-related responsibilities, and (b) their responsibilities related to supporting DPRR-led compliance inspections.

Management response and Action Plan

Management accepts this recommendation.

A revision to the Personnel Certification Compliance Verification Strategy will be issued to clarify performance expectations for ECOs related to both their certification-related responsibilities and their responsibilities related to supporting DPRR-led compliance inspections. This will be completed by June 30, 2014.

2.2. Adequacy of the CNSC's control mechanisms for certifying NPP personnel and overseeing NPP compliance with certification regulations

The audit examined the controls in place, including the processes, procedures and guidance, along with the training, tools and resources available to support the review of certification requests submitted by NPP licence holders and for overseeing NPP licensees' compliance with certification regulations.

2.2.1. Processes, procedures and guidance documents

The processes, guidance and procedures in place are adequate to support the CNSC's NPP personnel certification oversight activities.

In addition to RD-204, the PCD has established the following documents, which provide requirements and guidance information to licensees and guide ECOs when they participate in DPRR inspections of licensee-run certification examinations:

- *Requirements and Guidelines for Written and Oral Certification Examinations for Shift Personnel at Nuclear Power Plants (EG1)*, published in July 2005

- *Requirements and Guidelines for Simulator-Based Certification Examinations for Shift Personnel at Nuclear Power Plants (EG2)*, published in June 2004
- *Requirements for the Requalification Testing of Certified Shift Personnel at Nuclear Power Plants*, published in May 2009

As previously noted, with the publishing of RD-204 in 2008 the CNSC's NPP personnel certification role changed, moving from administration of examinations in support of certification to a role of oversight of examination processes conducted by the NPP licensees. We note that while EG1, EG2 and the requalification requirements document were developed in 2005, 2004 and 2009, respectively, the regulatory changes to RD-204 were already in development; consequently, these guidance documents appropriately reflect the examination processes described in the final 2008 version of RD-204.

In addition to the DPRR's standard inspection processes and procedures for the conduct of Type I inspections, the PCD and DPRR have developed an additional guidance document, *PCD: Type II Inspection of (Initial Simulator-Based) Certification Examinations at Nuclear Power Plants*, which was approved in September 2010. This document guides CNSC staff in the tasks necessary for inspecting NPP administration of certification examinations.

Since the implementation of RD-204, the PCD has also developed an operational procedure (*PCD-ST11: Certification and Renewal of Certification of Class IA Nuclear Facility Personnel*) and a number of worksheets that provide ECOs with a systematic approach to assess initial certification requests and requests for the extension of the validity period of NPP certification examinations.

Finally, we note that for the oversight of licensee training programs, as TPED staff support the DPRR's licensing and compliance activities, they are guided by the CNSC's Type I and II inspection procedures and their internal procedural document, *TPED-01: Objectives and Criteria for Regulatory Evaluations of Nuclear Facility Training Programs*, along with inspection guides, question banks and various other inspection-related tools. We were advised that a new regulatory document, REGDOC-2.2.2, *Personnel Training*, was out for consultation at the time of our audit.

2.2.2. Training, tools and resources

ECOs have adequate tools, resources and information to fulfill their certification and inspection responsibilities. However, ECO training and development of new and junior employees is informal, and electronic tools are in-house programs not fully supported by the Corporate Services Branch.

As noted in section 2.1.2, work descriptions exist that provide ECOs with a summary of their duties and responsibilities, although we noted that these

documents are generic and do not include a formal competency and skill framework for the ECO positions.

We found that although the PCD currently comprises experienced ECOs, no divisional-level learning and training strategies or any other formal programs are in place for training and developing new or junior staff. Rather, the PCD relies on on-the-job training and mentoring from more experienced staff to develop PCD ECOs. Furthermore, we learned that the PCD does not have a systematic approach to capturing and transferring knowledge for ongoing PCD staff development.

Lastly, we noted that the PCD develops and maintains in-house information systems for tracking certification-related correspondence, monitoring NPP examination schedules and documenting NPP candidate certification records. Although the software used for the databases is supported and maintained by the CNSC's Information Management and Technology Directorate (IMTD), PCD staff develop and maintain the databases and perform database-related support tasks (i.e., designing customized reports, establishing users, controlling database access and performing periodic database backups).

The audit team is aware that "home-grown" databases such as this are at risk of being incompatible with the IMTD's planned changes to the suite of software packages installed on CNSC desktop computers. The audit team has advised PCD management of this risk. The PCD has followed up with the IMTD and determined that the software on which the PCD runs its scheduling database will continue to be available to and supported by the IMTD. As well, the PCD will be working with the IMTD to determine whether the CNSC's case management system (currently being developed) will fulfill the PCD's long-term, certification-related IM/IT requirements.

Recommendation 2

The PCD should strengthen its human resource and succession planning practices by (a) reviewing, revising and formalizing knowledge transfer strategies within the PCD, and (b) ensuring employee learning plans, and training and development opportunities, align with and support the division's current and future business needs.

Management response and Action Plan

Management accepts this recommendation.

A review of PCD knowledge transfer strategies will be conducted to strengthen human resource and succession planning practices. Employees' learning plans, including training and development opportunities, will be updated to align with and support the divisional business needs. The review will be completed by October 30, 2014, and training plans will be updated by June 2014.

2.3. Adequacy of the CNSC's certification processes to support the assessment of NPP certification requests and inspection of NPP licensees' compliance with personnel certification regulations

As previously noted (see section 2.1.2), ROB leads the planning, conduct and reporting of compliance inspections for the CNSC. Although ROB's CNSC-wide compliance processes are used to plan, monitor, conduct and report on inspections of NPP certification examinations and training programs, these are not part of this audit's scope and were not examined.

Our audit examined the PCD's certification assessment process, and PCD and TPED involvement in inspections of NPP certification examinations and training programs.

2.3.1. Assessing NPP personnel certification requests

Personnel certifications are reviewed and approved in accordance with regulatory requirements; documentation supporting certification assessments is not consistent.

We found that PCD certification assessment checklists and inspection guides for NPP certified staff are appropriately aligned with the requirements contained in EG1, EG2 and the requalification requirements document. We noted that the PCD has documented processes for assessing certification requests from NPPs for their health physicists and authorized nuclear operators.

The PCD certification assessment guidance material includes flowcharts, checklists and routing forms for obtaining approvals for the draft certification decision. The audit found that the PCD assessment process includes peer/supervisor review of a certification file (checklist, assessment and draft DO decision) prior to file submission to the DO for a final certification decision. The PCD documents the DO's certification decision in the file and then works with the DPRR to issue a letter to the NPP, along with a certificate for the employee.

Interviews confirmed that an approval structure is in place to ensure that certifications are reviewed in a consistent manner. However, audit interviews also revealed that no formal requirements or written guidance exists for ECOs to indicate what assessment documentation is to be included in PCD paper or electronic records pertaining to a certification decision.

As well, we were advised that some ECOs seek information from the TPED regarding the results of recent training inspections, in order to inform their certification assessments. We note that this practice is not a PCD requirement and that there are no standards for documenting the results of these discussions with the TPED.

A sample of 15 PCD-approved NPP certification files, representing 10 percent of the total 149 issued in 2010–11 and 2011–12, was judgmentally selected to determine whether the PCD's certification approval process was consistently

applied and whether the PCD adequately documented its assessments and certification approvals.

Of the 15 files tested, three (20 percent) did not contain a copy of the certification checklist and approval form. In following up on these three certification files, the Director PCD advised the auditors that (a) notwithstanding the lack of written guidance, the PCD's standard practice is to maintain complete paper files of all certification requests, and (b) the official CNSC record for certification decisions is the electronic record maintained in the e-Access system.

All the interviewees indicated that the checklist is completed and included in each certification file submitted to the DO for review. The audit team found that as of June 7, 2013, the PCD verified that the final DO decision was in the corporate records for each of the aforementioned three certifications; however, the PCD has been unable to locate either the electronic or paper copy of these three checklists. The absence of the checklists in these files might pose a challenge to the CNSC if it needs to publicly defend the DO's certification decisions in these instances.

Finally, we understand that the CNSC's current practice requires only that the final DO decision be retained in the corporate information system. We are also aware that a Corporate Services Branch information management initiative will have each division examine their operational activities to identify those records of business value (RBVs) that would require a formal information management strategy.

Recommendation 3

PCD management should (a) ensure that complete documentation for all certification requests and decisions is maintained in either the divisional paper records or the corporate electronic record system, and (b) work proactively with the Corporate Services Branch to ensure divisional record-keeping practices align with the corporate IM-RBV initiative.

Management response and Action Plan

Management accepts this recommendation.

The PCD, in collaboration with the DOs, will complete a review of the corporate documentation needed to support a certification decision and address what related RBVs should be kept. The PCD will then engage with the Corporate Services Branch on how best to implement the recommendation. These actions will be completed by November 30, 2014.

Recommendation 4

The TPED and PCD should document and communicate a joint divisional protocol that would guide their respective organizations on the PCD

requirements, when assessing NPP certification requests, to obtain input from the TPED on the results of training program inspections for that NPP.

Management response and Action Plan

Management accepts this recommendation.

The directors of the PCD and the TPED will issue a joint protocol that will guide their respective organizations on the PCD requirements, when assessing NPP certification requests, to obtain input from the TPED on the status of training programs for that NPP. This action will be completed by June 30, 2014.

2.3.2. Planning of certification-related compliance activities

Planning of inspections to be conducted on NPP certification examination and training activities is risk-informed. However, the PCD's input to the planning process does not ensure inspection coverage adequately supports certification information requirements.

The audit found that both the PCD and TPED provide input to the ROB annual inspection planning process. The DPRR has established annual collaborative inspection-planning meetings (called revolving-door meetings) involving both the PCD and TPED. A risk-informed forward inspection plan for each NPP (covering a five-year period) is in place, which identifies the planned inspections by quarter, drawing on PCD and TPED expertise and resources.

Interviews revealed that the TPED prepares for the annual DPRR planning meetings by determining what "job families" and topics should be concentrated on for the upcoming fiscal year for both certified and non-certified positions at NPPs; this includes consideration of the PCD's inspection needs, although there is no formal integration or coordination of their risk-information gathering activities in preparation for the ROB annual inspection planning process.

For DPRR planning exercises, PCD staff track planned examination activities at each NPP and use this information to assist the DPRR with the next fiscal year's inspection schedule.

Immediately following the 2009 changes to the certification examination process, the PCD conducted inspections at every licensee control room simulator examination. In 2011 the PCD developed and began implementing the CNSC Personnel Certification Compliance Verification Strategy, a risk-based inspection approach developed as a collaborative effort of PCD and DPRR staff.

We noted that under the strategy, examination inspections will be conducted once per year at each NPP, regardless of the number of simulator examinations the licensee runs in the year. Interviews revealed that PCD management is satisfied that over a multi-year period, extrapolation of individual inspection results regarding a licensee's compliance will provide adequate input to the

certification assessment process. We were informed that although implementation of the verification strategy is in year two of full implementation, delays due to PCD resource constraints mean that full implementation will take longer than planned.

Interviews revealed that PCD staff are neither aware that the verification strategy is expected to be adjusted as needed nor that the annual inspection plan does use risk information on higher-risk certification examination areas. Staff identified results of TPED inspections, attrition of NPP examiners and the ratio of new-to-renewal certification requests as possible risk factors that they believed could be used to inform the baseline inspection plan.

In summary, while the PCD and TPED are appropriately involved in DPRR planning of inspections and the process uses a risk-informed approach, PCD management has not adequately communicated to staff performing certification assessments that, once fully implemented, the verification strategy is expected to support the certification DOs' assessments of NPP certification requests.

Recommendation 5

As the PCD implements the CNSC Personnel Certification Compliance Verification Strategy, management should ensure that (a) staff are aware of the risk-informed approach used in annual inspection planning, and (b) information that ECOs believe would help inform the frequency and timing of certification-related inspections is made available to the director.

Management response and Action Plan

Management accepts this recommendation.

The revision to the Personnel Certification Compliance Verification Strategy, planned for issue by June 30, 2014, will include information related to the risk-informed approach used in annual inspection planning and will address how ECOs can provide the director with information they believe would help inform the frequency and timing of certification-related inspections.

2.3.3. Monitoring of planned compliance activities

Monitoring of inspections performed against the plan is informal.

The CNSC-wide Regulatory Activity Plan activity and the DPRR annual inspection plan identify planned PCD involvement in NPP certification inspections.

We noted that the DPRR conducts a regular and systematic review of progress against the planned inspections; this review is centrally monitored and communicated to both the PCD and TPED. The associated documentation includes cancelled or deferred inspections, and overall inspection completion and

cancellation rates, as well as completed site-conducted and specialist-assisted inspections.

As well, we noted that as part of the DPRR's processes for monitoring the inspection plans, the DPRR lead inspector advises the PCD ECO assigned to a specific certification exam inspection of any adjustments to the planned inspection. Further, some PCD licensing officers have established an informal working relationship with each NPP, so that the officers can be made aware of this type of certification exam change in advance of notification from the DPRR. We found that the PCD has no formal processes in place to monitor the exam inspections against the plan or to provide inspection plan status reports to PCD management.

We were advised that PCD management is considering an expansion of this informal mechanism to monitor planned simulator exam inspections, in order to ensure that changes to the inspection plan do not adversely impact PCD core responsibilities to assess certification applications. We support the PCD's proactive approach to monitoring in-year inspection plan changes and suggest that the PCD use this informal mechanism to document the associated risk such changes pose to future certification requests. A consolidated recommendation related to the PCD's risk-information gathering procedures is presented in section 2.3.2.

2.3.4. Supporting guidance and procedure documents

Guidance and procedures in place adequately support consistent inspections of NPP personnel certification activities. However, sharing of inspection information between the PCD and TPED is informal and undocumented, and the PCD lacks internal standards on documenting, reviewing and approving ECOs' inspection-related work.

The DPRR has established guidelines for the conduct of Type I and Type II inspections that apply to all CNSC inspection activities, including certification exams and training program inspections.

In the TPED, the DPRR's standard inspection processes and procedures are used for the conduct of Type I and Type II inspections. We noted that the TPED developed more detailed operational procedures related to its subject matter, although these procedures have not been updated in recent years and do not include a requirement to inform the PCD of any inspection results that might impact the PCD's certification assessments.

In the PCD, the audit found that inspections are a collaborative effort, where ECOs are the subject matter experts on inspections of licensee-run examinations under the DPRR lead inspector. The PCD follows the DPRR Type I and Type II inspection process during its inspection work. We noted that while EG-1 and EG-2 are regulatory guidance documents for the licences, they are also the key tools the PCD uses during the exam inspections.

We noted that the CNSC Personnel Certification Compliance Verification Strategy does not include task-level direction or guidance to assist ECOs with their preparation and involvement in the examination inspections. As well, the PCD has not yet established divisional procedures for the review and approval of an ECO's inspection results before submission to the DPRR, or divisional documentation standards for recording PCD inspection-related activities.

File testing during the audit confirmed these ad hoc practices. We found inconsistencies in content and format of PCD inspection documentation.

We understand that the CNSC is moving to a CNSC-wide practice of retaining only the final inspection reports in the corporate information system, and that the official record documenting the PCD and TPED inspections is the compliance inspection report, documented in e-Access, which the lead inspector in the DPRR approves.

Without documented pre- and post-inspection procedures in the PCD, there is a risk that PCD support provided to examination inspections is not consistent. Without clear requirements for documentation retention, knowledge capture and decision support, there is a risk that PCD documentation supporting its input to the final inspection report is not meeting the PCD's certification needs and/or CNSC documentation standards.

Recommendation 6

The PCD should develop and communicate internal procedure and guidance material related to its inspection activities, including guidance on the nature and depth of its pre-inspection activities (e.g., review of the examination scenarios, exam scoring grid, past inspection results, and outstanding action items) and standards for documenting and maintaining sufficient and appropriate support for its input to final inspection results.

Management response and Action Plan

Management accepts this recommendation.

Compliance inspections are a recent addition to the ECO role. At the same time, profound changes have been made to the CNSC approach to compliance inspections in general. The PCD will use the experience gained since 2011 to develop these internal procedures and guidance. Gathering this experience will require another year of data collection and is expected to be complete by the end of fiscal year 2014–15.

An ECO has been assigned to lead this initiative and will develop a plan by June 30, 2014. The revised guidance will be available by March 31, 2015 and will be used for inspections conducted during fiscal year 2015–16 and beyond.

2.3.5. Information for decision making and management reporting

Reporting on the extent of compliance with legislative and regulatory requirements is adequate. However, inspection results are not documented in a way that provides sufficient information for certification decisions.

CNSC staff report on the licensees' performance in their administration of certification training and examinations through the *CNSC Staff Integrated Safety Assessment of Canadian Nuclear Power Plants*, presented annually at a Commission public meeting. While we noted that the requirements for reporting to the Commission on certifications granted by the DO are not clear, we were informed that the Harmonized Plan initiative will include a review of the CNSC's current requirements related to DO reporting.

The corporate Regulatory Information Bank (RIB) system is used to record negative findings from compliance inspections that result in a directive, action notice, or recommendation to a licensee, along with the subsequent licensee response to the CNSC action items. As already noted (sections 2.2.2 and 2.3.4), we found that, other than inspection findings entered into the RIB system, the PCD has no formal requirement to maintain the results of its own exam inspections or to obtain the results of TPED's training inspections during certification decision making.

Recommendation 7

As part of establishing certification and inspection documentation standards, the PCD should identify and document what inspection-related information is required for its certification decisions, where that information is currently stored, and how and when ECOs should access the information.

Management response and Action Plan

Management accepts this recommendation.

The actions identified for recommendations 3, 4 and 6 address this recommendation.

2.3.6. Performance measures

Performance standards for the PCD have been established. However, there are no mechanisms for measuring whether the PCD meets these standards.

The PCD has established informal service standards for its certification activities, taking between five to seven days to complete a certification assessment. The DPRR has established general service standards for inspection activities – on completion of an inspection, the PCD has up to 60 days to provide its specialist input to the DPRR compliance inspection report.

Although general service standards exist for conducting certifications and inspections, we note that currently no PCD divisional performance measures are in place for these activities. We understand that the PCD may have limited time to conduct certification if full and timely disclosure does not exist among the NPP, DPRR and PCD. However, without clear performance metrics and related measurement information, there is a risk that PCD resource planning and allocation, along with risk management activities, may not be effectively managed.

Recommendation 8

The director PCD should develop and implement a performance measurement regime for the PCD's personnel certification and examination inspection activities that includes performance metrics, measurement strategies and reporting mechanisms.

Management response and Action Plan

Management accepts this recommendation.

The PCD has established external service standards for certification application reviews. The licensee will be notified within 10 working days of receipt of an application by the CNSC if additional information is required. Once a complete application is received by the CNSC, a certification decision will be made within 60 calendar days. To meet these external service standards, PCD staff will make a recommendation to the DO within 30 working days of receipt of a complete application. However, there is no formal process to monitor performance.

PCD management will engage with PCD staff by June 30, 2014 to determine what level of formality and necessary support processes are needed for the performance measurement regime, including for inspection activities. Following this consultation, the PCD will then develop a plan to create the processes by September 30, 2014.

2.3.7. Monitor and follow up on inspection results

Monitoring and follow-up on items requiring corrective actions is appropriate. However, electronic tools do not fully support PCD certification activities.

Under the CNSC's NPP inspection process, the DPRR has responsibility for monitoring and follow-up on items requiring corrective actions. The DPRR uses the RIB system to record and track action items resulting from inspections of certification exams and training programs.

We previously noted that the PCD does not yet have a standard approach for its ECOs to prepare for inspections, although we learned that under the DPRR

Type II inspection process, ECOs do refer to the RIB system as part of planning their inspections.

We note that although the DPRR is responsible for tracking items requiring corrective actions and updating the RIB system and that the PCD's certification assessment form requires ECOs to consult the RIB system for open action items, interviews revealed that some ECOs also seek additional information on action items by directly contacting the NPPs for status updates.

We note that neither the PCD nor the TPED have a documented or systematic approach to determine if the results of problematic examination or training action items identified during inspections would impact the PCD's assessment of certifications for candidates that were not directly impacted by the issues identified.

A consolidated recommendation related to PCD divisional procedures for assessing certifications is presented in section 2.3.4.

Overall Conclusion

The existing governance, control and risk management processes support the CNSC's oversight of NPP compliance with regulatory requirements for personnel certification and training activities. However, specific opportunities exist to improve the design and effectiveness of these processes:

- The CNSC's governance of the oversight of licensees' compliance with personnel certification regulations is adequate and the PCD's mandate to certify personnel working at NPPs is clear. However, opportunities exist to improve the understanding within the PCD of the new role and responsibility of ECOs to support CNSC inspections of licensee-run certification examinations.
- The CNSC has published regulatory guidance documentation and has established CNSC-wide processes, procedures and tools adequate for overseeing NPP licensees' compliance with certification examination and training requirements. However, existing procedures and tools do not effectively support the timely assessment of licensee requests to certify NPP workers.
 - Opportunities exist for the CNSC to strengthen the processes, procedures and tools used to capture, document and track:
 - requests for certification
 - certification decisions of the DO
 - inspection results and corrective actions that relate to either licensee training or examination activities
 - Opportunities exist for the PCD to strengthen its divisional-level processes, procedures and guidance documentation to include up-to-date and more detailed guidance to ECOs on:
 - PCD standards for assessing certification applications
 - certification and inspection file documentation standards
 - the obtaining of timely information on the results of CNSC inspections of licensee certification examination and training programs
- The CNSC's recent move to the use of CNSC-wide processes for planning, conducting and reporting on inspections of licensee-run certification examinations is progressing, although the PCD's internal processes and tools do not yet ensure that a consistent level of support is provided to these inspections or that certification-related information is integrated into the annual risk-based inspection planning.

We acknowledge and thank management and staff for their support and cooperation throughout the conduct of this audit.

Appendix A: Audit Criteria

The following detailed audit criteria for each line of enquiry were used for the audit:

Line of enquiry 1: The adequacy of the CNSC's governance process for certifying NPP personnel and overseeing NPP licensees' compliance with personnel certification regulations.

- 1.1 The CNSC has a governance structure to oversee NPP certification and compliance activities.
- 1.2 The CNSC's mandate with respect to certification and compliance activities, along with the related information framework, has been clearly communicated.

Line of enquiry 2: The adequacy of the CNSC's control mechanisms (i.e., processes, procedures, guidance, training and tools) used for certifying NPP personnel and overseeing NPP licensees' compliance with personnel certification regulations.

- 1.3 Processes, guidance and procedure documents support the consistent and adequate review of NPP personnel certification and compliance activities.
- 1.4 Certification and inspection officers are provided with the training, tools, resources and information they need to fulfill their responsibilities.

Line of enquiry 3: The adequacy of the CNSC's processes to support the assessment of NPP certification requests and inspection of NPP licensees' compliance with personnel certification regulations.

Planning

- 2.1 NPP personnel certifications are reviewed and approved in accordance with regulations and established procedures.
- 2.2 The process to identify inspections to be conducted on NPP personnel certification activities is systematic and risk based.
- 2.3 Management monitors NPP inspections performed against its plan.

Conducting

- 2.4 Guidance and procedure documents are in place and current to support the conduct of consistent compliance of inspections for NPP personnel certification activities.

Reporting

- 2.5 Management receives sufficient, complete, timely and accurate information resulting from inspections performed to make decisions.

2.6 Management has identified appropriate performance measures to report on the extent of compliance with legislative and regulatory requirements.

2.7 There is a process in place to monitor and follow up on items requiring corrective actions.

The audit criteria are based on:

- *Office of the Comptroller General's Audit Criteria Related to the Management Accountability Framework*
- *RD-204, Certification of Persons Working at Nuclear Power Plants*
- *Requirements and Guidelines for Written and Oral Certification Examinations for Shift Personnel at Nuclear Power Plants (EG1)*
- *Requirements and Guidelines for Simulator-Based Certification Examinations for Shift Personnel at Nuclear Power Plants (EG2)*
- *Requirements for the Requalification Testing of Certified Shift Personnel at Nuclear Power Plants*

Appendix B: Audit Recommendations and Management Action Plan

The following table presents a summary of the recommendations and Management response and Action Plan raised in the Audit Observations and Recommendations section of the report:

Action owner (office of primary interest)	Management response and Action Plan	Timeline
<p>Recommendation 1. The PCD should ensure that performance expectations communicated to ECOs include clear information on (a) their certification-related responsibilities, and (b) their responsibilities related to supporting DPRR-led compliance inspections.</p>		
<p>Director PCD</p>	<p>Management accepts this recommendation. A revision to the Personnel Certification Compliance Verification Strategy will be issued to clarify performance expectations for ECOs related to both their certification-related responsibilities and their responsibilities related to supporting DPRR-led compliance inspections.</p>	<p>June 30, 2014</p>
<p>Recommendation 2. The PCD should strengthen its human resource and succession planning practices by (a) reviewing, revising and formalizing knowledge transfer strategies within the PCD, and (b) ensuring employee learning plans, and training and development opportunities, align with and support the division's current and future business needs.</p>		
<p>Director PCD</p>	<p>Management accepts this recommendation. A review of PCD knowledge transfer strategies will be conducted to strengthen human resource and succession planning practices. Employees' learning plans, including training and development opportunities, will be updated to align with and support the divisional business needs.</p>	<p>Review by October 30, 2014 Training plans by June 2014</p>
<p>Recommendation 3. PCD management should (a) ensure that complete documentation for all certification requests and decisions is maintained in either the divisional paper records or the corporate electronic record system, and (b) work proactively with the Corporate Services Branch to ensure its divisional</p>		

Action owner (office of primary interest)	Management response and Action Plan	Timeline
record-keeping practices align with the corporate IM-RBV initiative.		
Director PCD	Management accepts this recommendation. The PCD, in collaboration with the DOs, will complete a review of the corporate documentation needed to support a certification decision and address what related records of business value (RBVs) should be kept. The PCD will then engage with the Corporate Services Branch on how best to implement the recommendation.	November 30, 2014
<p>Recommendation 4. The TPED and PCD should document and communicate a joint divisional protocol that would guide their respective organizations on the PCD requirements, when assessing NPP certification requests, to obtain input from the TPED on the results of training program inspections for that NPP.</p>		
DG-DSM	Management accepts this recommendation. The directors of the PCD and TPED will issue a joint protocol that will guide their respective organizations on the PCD requirements, when assessing NPP certification requests, to obtain input from the TPED on the status of training programs for that NPP.	June 30, 2014
<p>Recommendation 5. As the PCD implements the CNSC Personnel Certification Compliance Verification Strategy, management should ensure that (a) staff are aware of the risk-informed approach used in annual inspection planning, and (b) information that ECOs believe would help inform the frequency and timing of certification-related inspections is made available to the director.</p>		
Director PCD	Management accepts this recommendation. The revision to the Personnel Certification Compliance Verification Strategy, planned for issue by June 30, 2014, will include information related to the risk-informed approach used in annual inspection planning and will address how ECOs can provide the director with information they believe would help inform the frequency and	June 30, 2014

Action owner (office of primary interest)	Management response and Action Plan	Timeline
	timing of certification-related inspections.	
<p>Recommendation 6. The PCD should develop and communicate internal procedure and guidance material related to its inspection activities, including guidance on the nature and depth of its pre-inspection activities (e.g., review of the examination scenarios, exam scoring grid, past inspection results, and outstanding action items) and standards for documenting and maintaining sufficient and appropriate support for its input to final inspection results.</p>		
Director PCD	<p>Management accepts this recommendation. Compliance inspections are a recent addition to the ECO role. At the same time, profound changes have been made to the CNSC approach to compliance inspections in general. The PCD will use the experience gained since 2011 to develop these internal procedures and guidance. Gathering this experience will require another year of data collection and is expected to be complete by the end of fiscal year 2014–15.</p> <p>An ECO has been assigned to lead this initiative and will develop a plan by June 30, 2014. The revised guidance will be available by March 31, 2015 and will be used for inspections conducted during fiscal year 2015–16 and beyond.</p>	<p>Lead assigned January 1, 2014</p> <p>Plan prepared by June 30, 2014</p> <p>Plan implemented by March 31, 2015</p>
<p>Recommendation 7. As part of establishing certification and inspection documentation standards, the PCD should identify and document what inspection-related information is required for its certification decisions, where that information is currently stored, and how and when ECOs should access the information.</p>		
Director PCD	<p>Management accepts this recommendation. The actions identified for recommendations 3, 4 and 6 address this recommendation.</p>	March 31, 2015
<p>Recommendation 8. The director PCD should develop and implement a performance measurement regime for the PCD's personnel certification and examination inspection activities that include performance metrics, measurement</p>		

Action owner (office of primary interest)	Management response and Action Plan	Timeline
strategies and reporting mechanisms.		
<p>Director PCD</p>	<p>Management accepts this recommendation. The PCD has established external service standards for certification application reviews. The licensee will be notified within 10 working days of receipt of an application by the CNSC if additional information is required. Once a complete application is received by the CNSC, a certification decision will be made within 60 calendar days. To meet these external service standards, PCD staff will make a recommendation to the DO within 30 working days of receipt of a complete application. However, there is no formal process to monitor performance.</p> <p>PCD management will engage with PCD staff to determine what level of formality and necessary support processes are needed for the performance measurement regime, including for inspection activities. Following this consultation, the PCD will then develop a plan to create the processes.</p>	<p>Identification of processes by June 30, 2014 Development of plan to create the processes by September 30, 2014</p>

Appendix C: Abbreviations

DG	director general
DO	designated officer
DPRR	Directorate of Power Reactor Regulation
DSM	Directorate of Safety Management
ECO	examination and certification officer
IMTD	Information Management and Technology Directorate
NPP	nuclear power plant
NSCA	<i>Nuclear Safety and Control Act</i>
OAE	Office of Audit and Ethics
PCD	Personnel Certification Division
RBV	record of business value
RD	regulatory document
RIB	Regulatory Information Bank
ROB	Regulatory Operations Branch
TPED	Training Program Evaluation Division