



# Human Performance Management Personnel Certification, Volume III: Certification of Reactor Facility Workers

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REGDOC-2.2.3, Version 2

October 2023



## **Personnel Certification, Volume III: Certification of Reactor Facility Workers**

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### **Document availability**

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## Preface

This regulatory document is part of the CNSC’s human performance management series of regulatory documents, which also covers human factors, personnel training and other personnel certification matters. The full list of regulatory document series is included at the end of this document and can also be found on the [CNSC’s website](#).

Regulatory document REGDOC-2.2.3, *Personnel Certification, Volume III: Certification of Reactor Facility Workers*, Version 2 sets out the detailed requirements and guidance for the certification of workers employed at reactor facilities operated in Canada.

This document is the second version of REGDOC-2.2.3, *Personnel Certification, Volume III: Certification of Persons Working at Nuclear Power Plants*, published in September 2019. A document showing the changes made to the first version is available from the CNSC upon request.

### Complementary regulatory documents

The requirements and guidance documented in this regulatory document are in addition to the requirements and guidance applicable to reactor facility workers in general. Workers certified or seeking certification by the CNSC are therefore not exempt from any applicable requirements specified in other regulatory documents.

In particular, this document must be read in conjunction with complementary regulatory documents in the human performance management series and other safety and control areas referenced in the licence or any accompanying documentation, as applicable. A comprehensive list of complementary regulatory documents of relevance is included as “Additional Information” in the last section of this regulatory document.

### Regulatory approach

For information on the implementation of regulatory documents and on the graded approach, see REGDOC-3.5.3, *Regulatory Fundamentals*.

The words “shall” and “must” are used to express requirements to be satisfied by the licensee or licence applicant. “Should” is used to express guidance or that which is advised. “May” is used to express an option or that which is advised or permissible within the limits of this regulatory document. “Can” is used to express possibility or capability.

Nothing contained in this document is to be construed as relieving any licensee from any other pertinent requirements. It is the licensee’s responsibility to identify and comply with all applicable regulations and licence conditions.

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## Personnel Certification: Certification of Reactor Facility Workers

### 1. Introduction

The Canadian Nuclear Safety Commission (CNSC) requires that the reactor facility workers employed in certain positions of immediate relevance to nuclear safety must be certified by the CNSC as qualified to carry out the duties of their employment. For the purpose of this regulatory document, said positions are referred to as designated positions.

#### 1.1 Purpose

The purpose of this regulatory document is to specify the detailed requirements and provide guidance pertinent to the certification of the reactor facility workers employed or seeking employment in designated positions.

#### 1.2 Scope

When referenced in a licence, this regulatory document applies to:

- a. all workers seeking certification by the CNSC, or seeking to maintain or renew such certification, for employment in one of the designated positions identified in the licence
- b. the licensee operating the reactor facility identified in the licence
- c. the personnel identified in this regulatory document and involved in the training and evaluation, or the certification examination and requalification testing, of workers employed or seeking employment in designated positions at the reactor facility identified in the licence

This regulatory document comprises 3 parts, as follows:

- a. Part I describes the regulatory and procedural devices that make up the CNSC personnel certification scheme relevant to reactor facility workers
- b. Part II describes the organizational and physical infrastructures that the licensee must implement to support the personnel certification scheme described in Part I and achieve the worker qualifications specified in Part III
- c. Part III specifies the prerequisites that reactor facility workers must meet to be eligible for the personnel certification processes described in Part I

#### 1.3 Relevant legislation

The following provisions of the *Nuclear Safety and Control Act* (NSCA) and the regulations made under it are relevant to this document:

- a. NSCA, paragraphs 21(1)(i), 37(2)(b), 44(1)(k) and 44(1)(l)
- b. *General Nuclear Safety and Control Regulations*, paragraphs 12(1)(a) and 12(1)(b)
- c. *Class I Nuclear Facilities Regulations*, section 10, subsections 9(2), 9(3), 9(4), 11(1), 11(2), 12(1), 12(2), 13(1), 13(2) and 14(5), and paragraph 14(2)(e)

#### **1.4 National and international standards**

The key principles and elements used in developing this document are consistent with national and international standards. The following standards are relevant to this regulatory document:

- a. IAEA Nuclear Energy Series NG-T-2.8, *Systematic Approach to Training for Nuclear Facility Personnel: Processes, Methodology and Practices*
- b. IAEA Safety Standard Series NS-G-2.8, *Recruitment, Qualification and Training of Personnel for Nuclear Power Plants*
- c. IAEA TECDOC 525, *Guidebook on Training to Establish and Maintain the Qualification and Competence of Nuclear Power Plant Operations Personnel*
- d. IAEA TECDOC 1502, *Authorization of Nuclear Power Plant Control Room Personnel: Methods and Practices with Emphasis on the Use of Simulators*
- e. ISO/IEC 17000, *Conformity Assessment – Vocabulary and General Principles*
- f. ISO/IEC 17024, *Conformity Assessment – General Requirements for Bodies Operating Certification of Persons.*

## **Part I – Personnel Certification Scheme**

Part I describes the regulatory and procedural devices that make up the CNSC personnel certification scheme relevant to reactor facility workers.

### **2. Background Information**

The relevant legislation authorizes the Commission and designated officers (DO) to certify workers as qualified to carry out their duties, to renew the certification of certified workers, and to decertify certified workers following due process. The reactor facility workers certified by the CNSC are issued certificates as proof of certification specifying, among other information, a date of expiry. In accordance with regulations, certifications issued by the CNSC expire 5 years after their date of issuance or renewal. Consequently, authorized applicants must submit applications on behalf of the certified workers seeking the renewal of their certification(s) before the expiry date specified on each certificate.

### **3. Employment Stipulations**

#### **3.1 Permitted employment**

The certificates issued by the CNSC to reactor facility workers permit the employment of the worker identified on the certificate:

- a. on a full-time, part-time, or temporary basis
- b. as an employee or a contractor
- c. by the specified licensee
- d. at the specified reactor facility or facilities
- e. in the specified designated position

#### **Guidance**

**Certificate transferability** – Unless otherwise indicated on the certificate, certifications granted by the CNSC to reactor facility workers are not transferable between reactor facilities and licensees; however, candidates and certified workers may be transferred between reactor facilities equipped with similar technologies in accordance with subsection 14.5.

**Employee–employer relationship** – The licensee is responsible for the competency of all workers employed at the reactor facility identified in the licence regardless of the contractual agreement binding the workers, including any certified worker, and the licensee, as employer.

**Multiple certifications** – Certified workers may be employed in more than one designated position as long as the worker holds a valid certificate for each designated position, meets the

employment and training requirements linked to each designated position, and can safely and competently perform the duties of each designated position.

### **3.2 Employment status**

The licensee shall assign an employment status to each certified worker in accordance with the following categories:

- a. an “active” status is assigned to a worker who:
  - i. holds a valid certificate
  - ii. attends the scheduled continuing training
  - iii. meets the applicable minimum employment requirements
  - iv. continues to be able to perform the duties of the pertinent designated position safely and competently
- b. an “inactive” status is assigned to any certified worker who holds a valid certificate, but was formally removed from duty in accordance with subsection 20.3 or subsection 20.4
- c. an “uncertified” status is assigned to a worker whose certificate has expired
- d. a “decertified” status is assigned to a worker decertified by the CNSC

### **Guidance**

**Certificate validity** – A valid certificate is a certificate duly issued by the Commission or a DO that has not yet expired.

**End of employment** – The CNSC will not decertify workers holding a valid certificate who retire or announce their retirement or who, for any other reason, cease to work in, or train for, a designated position. In such cases, subsection 20.3 on the management of prolonged unemployment applies until the certificate expires, unless the worker is reinstated to duty as per subsection 20.5 before the certificate expires.

**Multiple certifications** – When a worker holds multiple certifications, a distinct employment status is assigned to the worker in relation to each pertinent designated position.

### **3.3 Employment record**

The licensee shall maintain, in accordance with subsection 21.2, a continuous and auditable employment record for each worker certified by the CNSC, including, at a minimum:

- a. the employment status assigned to the worker
- b. the number of complete shifts and hours of work performed in a designated position by the worker, specifying:
  - i. the pertinent designated position
  - ii. the date on which each complete shift and hour of work were performed

**Guidance**

Applicability – This subsection applies to any certified worker, whether an employee or a contractor, but only in relation to the reactor facility identified on the certificate(s).

**4. Designated Positions**

This regulatory document applies to the certification of the reactor facility workers employed or seeking employment in the following generic classes of designated positions:

- a. auxiliary systems operator (ASO)
- b. reactor operator (RO)
- c. shift supervisor
- d. senior health physicist (SHP)

**Guidance**

Management system – The generic classes of designated positions referenced throughout this regulatory document reflect the management systems implemented by licensees at the time of publication. However, nothing stated in this regulatory document should be construed as limiting the establishment of alternate management systems, including new positions.

**4.1 Station-specific designated positions**

The station-specific positions corresponding to the generic classes of designated positions are designated in the applicable licences.

Appendix A specifies which station-specific position(s) correspond to each generic class of designated position and which CNSC certification is required in each case.

**4.2 Designated position staffing**

The site-specific positions designated in reactor facility licences shall be staffed with workers certified by the CNSC as qualified to perform the duties of said designated positions.

**4.3 Roles and responsibilities of certified workers**

When in possession of a valid certificate, workers are deemed qualified to perform the duties of the pertinent site-specific positions listed in Appendix A in accordance with the licensee's management system.

**5. General Provisions Pertinent to All Applications****5.1 Authorized applicant**

Applications made under the provisions of this regulatory document shall be signed by a signatory officially authorized by the pertinent licensee to represent said licensee.

**Guidance**

Authorized applicant – In the reactor facility context, the applicant is the licensee, who necessarily needs to be represented by an authorized signatory referred to as the authorized applicant.

**5.2 Complete application**

Authorized applicants shall ensure that the applications submitted to the CNSC are complete. Incomplete applications may be rejected by the CNSC without further analysis.

**Guidance**

Complete application – In accordance with regulations, the Commission or a DO may certify a worker or renew the certification of a worker only after receiving an application. CNSC staff cannot make informed recommendations to the Commission or a DO based on incomplete applications. An application is deemed complete when it contains all the required information and contains no errors.

Minor omissions and typographic errors – The submission of incomplete applications causes undue administrative burden and leads to processing delays. Nonetheless, applications deemed incomplete as a result of minor omissions or typographic errors will be processed once the authorized applicant has submitted a revised application or provided additional information to the satisfaction of the CNSC.

**5.3 Basic information**

Applications made under the provisions of this regulatory document shall contain the following information:

- a. the purpose of the application
- b. the legal name of the worker, including a first name, a surname, and a middle name or initial when possible
- c. the designated position in which the worker is or will be employed
- d. the reactor facility where the worker is or will be employed, including, where applicable, a specific reactor or group of reactors
- e. the corporate name of the licensee operating said reactor facility
- f. the effective date of the application
- g. the legal name, position, contact information, and signature of the authorized applicant
- h. a valid return mailing or email address

**5.4 Transmission**

An authorized applicant may submit any application made under the provisions of this regulatory document either in printed or electronic form.



Printed submissions must be delivered to the following address:

Canadian Nuclear Safety Commission  
280 Slater Street  
P.O. Box 1046, Station B  
Ottawa, ON K1P 5S9

Electronic submissions must be emailed to [forms-formulaires@cnsccsn.gc.ca](mailto:forms-formulaires@cnsccsn.gc.ca) and include a complimentary copy (cc) to [pcd-dap@cnsccsn.gc.ca](mailto:pcd-dap@cnsccsn.gc.ca).

## 6. Application for Certification

In addition to the general provisions specified in section 5, an application for certification shall meet the requirements specified in this section.

### 6.1 Worker competency declaration

In accordance with regulations, the application shall state that the worker:

- 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
- c. is capable, in the opinion of the licensee, of performing the duties of the position

### 6.2 Personnel selection

The application shall describe how the applicable prerequisites of the personnel selection program described in section 14 were met, including, at a minimum:

- a. the worker's education or literacy level upon selection for initial training
- b. any education or literacy level equivalency recognized by the licensee
- c. any prior work experience required by the CNSC or the licensee
- d. any personnel selection interview undergone by the worker
- e. any personnel selection test administered to the worker, including any medical screening
- f. any exemption explicitly sanctioned in this regulatory document that was employed by the licensee

### 6.3 Worker qualification summary

The application shall provide a chronological summary of the qualifications achieved by the worker covering the initial training components, the certification examinations, and all other personnel certification requirements met by the worker.

The worker qualification summary shall offer sufficient evidence that the worker meets all of the applicable qualifications specified in Part III. At a minimum, this summary shall include, as applicable depending on the designated position:

- a. the date of each summative learner evaluation marking the completion of each initial training component
- b. the date of each knowledge-based certification examination
- c. the date of the performance-based certification examination

- d. any remedial action required by CNSC staff as a result of a certification examination administered by CNSC staff
- e. the date of completion of any period of work under supervision (WUS) and the total number of hours of supervised work performed by the worker
- f. the date of the management interview

### **Guidance**

Effective dates – The dates referenced in the worker qualification summary are the dates on which the evaluations, examinations and interview were conducted, not the dates on which their grading was finalized.

### **6.4 Supporting documentation**

The licensee is not required to append any supporting documentation to the application as proof of competency; however, personnel records shall be maintained in accordance with subsection 21.2 and made available for verification by the CNSC upon request.

### **6.5 Application schedule**

The licensee may apply for the certification of a qualified worker at any time.

### **6.6 Effective date of certification**

Unless the licensee requests a deferment, the effective date of the certification will be that of the certification decision made by the Commission or a DO.

### **6.7 Certification deferment**

The licensee may request that the effective date of certification be delayed up to 60 calendar days from the effective date of application for certification.

### **Guidance**

Limitation – In order to provide licensees with scheduling flexibility, the CNSC will consider any preference expressed by the authorized applicant regarding the effective date of certification as long as the preferred date falls within the aforementioned 60-day period. However, the CNSC is not obligated to comply with any request for certification deferment.

## **7. Application for Certification Renewal**

In addition to the general provisions specified in section 5, an application for the renewal of a certification shall meet the requirements specified in this section.

### **7.1 Worker competency declaration**

In accordance with regulations, the application shall state that the worker:

- a. has safely and competently performed the duties of the position for which the worker 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
- d. is capable, in the opinion of the licensee, of performing the duties of the position

## **7.2 Worker requalification summary**

The application shall provide a chronological summary of the requalification requirements met by the worker during the current certification period covering the continuing training components, the requalification tests, and all other personnel certification requirements met by the worker.

The worker requalification summary shall offer sufficient evidence that the worker meets all of the applicable requalification requirements specified in Part III. At a minimum, this summary shall include, as applicable depending on the designated position:

- a. a confirmation that the worker attended continuing training and successfully underwent formal learner evaluations compliant with the requirements specified in section 15, including suitable update, refresher, simulator-based and nuclear emergency response training
- b. the dates of all knowledge-based requalification tests successfully completed
- c. the dates of all performance-based requalification tests successfully completed
- d. the number of complete shifts and the number of hours of shiftwork performed in the designated position over the current certification period
- e. any remedial action required by CNSC staff as a result of a requalification test administered by CNSC staff

### **Guidance**

Effective dates – The dates referenced in the worker requalification summary are the dates on which the tests were conducted, not the dates on which their grading was finalized.

## **7.3 Supporting documentation**

The licensee is not required to append any supporting documentation to the application as proof of competency; however, personnel records shall be maintained in accordance with subsection 21.2, and made available for verification by the CNSC upon request.

### **Guidance**

Applicability – The supporting documentation referenced in this subsection encompasses any knowledge or performance-based requalification test that the worker completed during the current certification period, in either a lead or supporting role, and whether or not the worker successfully completed said test.

## **7.4 Application schedule**

The licensee shall apply for the renewal of the certification of a requalified worker no later than the date of expiry specified on the certificate.

### **Guidance**

Application deadline – The CNSC will accept any certification renewal application duly signed and dated before midnight on the day of the certificate expiry, as long as the application is received by the CNSC before midnight on the same day for an electronic submission, or within a

reasonable time frame for a printed application sent by mail or courier. When the licensee fails to meet this application deadline, section 8 applies instead of section 7.

Normal processing time – In order to avoid having to remove the worker from duty in accordance with sub-subsection 20.4.4 followed by a reinstatement as per subsection 20.5 and sub-subsection 20.6.4, the application should be made well in advance of the certificate expiry date, preferably allowing for a normal processing time of 60 calendar days.

Incomplete application – When a certification renewal application submitted before the deadline is found to be or remains incomplete after the certificate has expired, the application will be accepted, but the technical assessment will be paused until a revised application or additional information is submitted by the licensee to the satisfaction of the CNSC.

Prohibited employment – When the certificate expires while the certification renewal application is being processed by CNSC staff, the worker is considered no longer qualified to work in the pertinent designated position until the certification has been officially renewed by the CNSC.

### **7.5 Effective date of renewal**

When the application is signed and dated by an authorized applicant no earlier than 90 calendar days before the certification expiry, the effective date of the certification renewal will be made to coincide with the date of expiry of the existing certification.

### **7.6 Early certification renewal**

When the application is signed and dated by an authorized applicant earlier than 90 calendar days before the certification expiry, the effective date of the certification renewal will be that of the certification decision made by the Commission or a DO.

## **Guidance**

Limitation – In order to provide licensees with scheduling flexibility, the CNSC allows the renewal of the certification of reactor facility workers before the end of the certificate validity period. This allowance is made because shortening the certification period effectively increases the requalification testing frequency. However, in order to ensure that the proof of worker competency provided at the time of application is relatively recent, and therefore valid, the CNSC will not postpone the effective date of any early certification renewal beyond the processing time actually incurred. Authorized applicants should therefore plan ahead and duly consider the time constraints specified in this section before submitting certification renewal applications.

Certificate expiry – In all cases, when the certificate expires before the application can be processed by CNSC staff and a renewed certificate issued by the CNSC, the effective date of the certification renewal will be made to coincide with the date of expiry of the existing certification. The certification expiry date is the latest certification renewal date regardless of any other consideration since the Commission or a DO may only renew an existing certification.

## **8. Application for Recertification Within 5 Years of a Certificate Expiry**

In addition to the general provisions specified in section 5, an application for recertification submitted no later than 5 years following the expiry of a certificate shall meet the requirements specified in this section.

## Guidance

Applicability – This section applies to the recertification of a worker for employment in the same designated position as the one identified on an expired certificate when the authorized applicant has failed to submit a certification renewal application before the certification renewal deadline specified in subsection 7.4.

### 8.1 Worker competency declaration

In accordance with regulations, the application shall state that the worker:

- 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
- c. is capable, in the opinion of the licensee, of performing the duties of the position

## Guidance

Important note – To satisfy the condition set by subsection 9(2) of the *Class I Nuclear Facilities Regulations*, the correct worker competency declaration in the context of an application for recertification is the same as the competency declaration required for a certification.

### 8.2 Worker requalification summary

The application shall provide a chronological summary of a suitable reinstatement process, specifying the effective date of completion of each step, including, at a minimum:

- a. the tailored training, including any knowledge and performance-based refresher and update training, completed by the worker
- b. the knowledge-based requalification test successfully completed by the worker
- c. the performance-based requalification test or series of tests successfully completed by the worker
- d. the number of hours of WUS completed by the worker
- e. the management interview

The applicable worker requalification requirements are specified in Part III.

## Guidance

Notwithstanding the worker competency declaration required by the pertinent regulations, the “examination” referenced in subsection 8.1 is the suite of requalification tests specified in subsections 8.2 and 24.4. Neither the legislative basis nor the licence makes any reference to a recertification examination; rather, the applicable licences reference this regulatory document as an added source of specificity. Therefore, based on the graded approach, the CNSC considers it sufficient that a worker whose certificate expired less than 5 years ago be examined using requalification tests in lieu of the full suite of certification examinations initially required at the time of certification.

### **8.3 Supporting documentation**

The following supporting documentation shall be appended to the application:

- a. the individual training needs analysis (ITNA) or a summary of the ITNA
- b. the individual training plan (ITP) or a summary of the ITP
- c. the knowledge-based requalification test successfully completed by the worker, including the worker's answers and the grade obtained, in percentage
- d. the performance-based requalification test or series of tests successfully completed by the worker, including the graded candidate actions
- e. a suitable record, signed by an authorized licensee representative, of the WUS hours completed by the worker
- f. a recording, a transcript, or the minutes of the mandated management interview

### **8.4 Application schedule**

The licensee may apply for the recertification of a worker in accordance with section 8 no later than 5 years after the date of expiry specified on the certificate.

#### **Guidance**

Application deadline – When the certificate has expired more than 5 years prior to the effective date of application for recertification, section 9 applies instead of section 8.

### **8.5 Effective date of certification**

The effective date of the certification will be that of the certification decision made by the Commission or a DO.

## **9. Application for Recertification Following Decertification or Certificate Expiry After 5 Years**

In addition to the general provisions specified in section 5, an application for the recertification of a worker following decertification by the CNSC, or following a certificate expiry that occurred more than 5 years prior to the effective date of the application for recertification, shall meet the requirements specified in this section.

#### **Guidance**

Applicability – This subsection applies to the recertification of a worker for employment in the same designated position as the one identified on a certificate in relation to which the worker was previously decertified by the CNSC, or which expired more than 5 years prior to the effective date of the current application.

### **9.1 Worker competency declaration**

The application shall state that the worker:

- 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

- c. is capable, in the opinion of the licensee, of performing the duties of the position

### **Guidance**

Important note – To satisfy the condition set by subsection 9(2) of the *Class I Nuclear Facilities Regulations*, the correct worker competency declaration in the context of an application for recertification is the same as the competency declaration required for a certification.

## **9.2 Recertification substantiation**

The application shall present a substantiated argument in support of the recertification of the worker, explaining why the CNSC should recertify a worker previously decertified by the CNSC, or whose certificate expired more than 5 years ago, including:

- a. a description of the remedial actions taken by the licensee, including any remedial training, to ensure that any deficiency identified as part of the basis for the prior decertification has been adequately remedied or mitigated, as applicable
- b. a summary of a suitable reinstatement process and the effective date of completion of each step, including:
  - i. the tailored training, including any knowledge and performance-based refresher and update training, completed by the worker
  - ii. the knowledge-based certification examination successfully completed by the worker
  - iii. the performance-based certification examination successfully completed by the worker
  - iv. the number of hours of WUS completed by the worker
  - v. the management interview
- c. a description of any relevant mitigating circumstances

The applicable worker requalification requirements are specified in Part III.

## **9.3 Supporting documentation**

The following supporting documentation shall be appended to the application:

- a. the individual training needs analysis (ITNA) or a summary of the ITNA
- b. the individual training plan (ITP) or a summary of the ITP
- c. the knowledge-based certification examination successfully completed by the worker, including the worker's answers and the grade obtained, in percentage
- d. the performance-based certification examination successfully completed by the worker, including the graded candidate actions
- e. a suitable record, signed by an authorized licensee representative, of the WUS hours completed by the worker
- f. a recording, a transcript, or the minutes of the mandated management interview
- g. any other documentation deemed essential in support of the application

## **9.4 Application schedule**

The licensee may apply for the recertification of a worker following decertification at any time after being informed of the Commission's or DO's decision to decertify the worker.

The licensee may apply for the recertification of a worker following certificate expiry in accordance with section 9 no earlier than 5 years after the effective date of expiry specified on the certificate of the worker.

### **9.5 Effective date of certification**

The effective date of the certification will be that of the certification decision made by the Commission or a DO.

## **10. Application for Senior Health Physicist Examination or Requalification Testing**

An authorized applicant may submit an application for the administration of a certification examination or requalification test to a worker seeking certification or the renewal of a certification for employment as senior health physicist (SHP) once the worker has met the pertinent prerequisites specified in Part III.

The application shall be submitted in writing in accordance with the general provisions of the personnel certification application processes specified in section 5, and shall state that the worker:

- a. has successfully completed the applicable training referenced in the licence, specifying the effective date of completion of the initial or continuing training referenced in section 25
- b. has successfully undergone the applicable management interview referenced in section 25, specifying the date of the interview

### **Guidance**

Early notification – Given the time required for CNSC staff to prepare, conduct, and grade each examination or test, the licensee should notify the CNSC as early as possible in advance of the formal application for certification examination or requalification test.

Candidate availability – The licensee should specify, as part of any early notification and as part of the formal application, alternate dates when the worker will be qualified and available to take the certification examination or requalification test.

## **11. Refusal to Certify and Decertification**

### **11.1 Background information**

In accordance with the relevant legislation, the Commission or a DO may refuse to issue or renew a certification upon receiving an application for certification or the renewal of a certification, and may initiate the decertification of a certified worker on its own motion or upon request. Prior to making a final decision, the Commission or a DO will give prior notice of the proposed decision



to the licensee and the worker concerned, offering each party an opportunity to be heard, either in support of or against the proposed decision.

### **11.2 Licensee requests for decertification**

The licensee may request the decertification of a certified worker employed at the reactor facility identified in the licence. All such requests shall be submitted in writing in accordance with subsection 5.4 and contain the following information:

- a. the purpose of the request
- b. the legal name of the worker, as shown on the most recent certificate issued to the worker
- c. the designated position for which the worker is to be decertified
- d. the reactor facility where the worker is employed, including, where applicable, a specific reactor or group of reactors
- e. the corporate name of the licensee operating said reactor facility
- f. a description of the basis for the request
- g. supporting documentation, as may exist, establishing a sufficient basis for decertification
- h. the effective date of the request
- i. the legal name, position, contact information and signature of an authorized licensee representative
- j. a valid return mailing or email address

### **11.3 Requesting an opportunity to be heard**

A licensee or a worker who has received notice of a proposed decision may request an opportunity to be heard within 30 calendar days of the receipt of the notice. All such requests shall be submitted in writing in accordance with subsection 5.4.

### **11.4 Commission or designated officer decision**

On completion of an opportunity to be heard, the licensee and the worker concerned will be notified in writing of the Commission or DO decision and the rationale for the decision.

## **12. Administrative Processes**

### **12.1 Legal name change**

The licensee shall promptly:

- a. inform the CNSC of any change in the legal name of any worker employed or training for employment in a designated position
- b. request that the CNSC issue a replacement certificate for any certified worker who has officially changed their legal name

## **Guidance**

Purpose – The CNSC needs to know the legal identity of all workers employed or training for employment in a designated position in order to maintain accurate personnel certification records and issue certificates to the correct persons.

### **12.2 Replacement certificates**

The licensee may request that the CNSC reissue a certificate on behalf of a certified worker if:

- a. the certificate has been lost
- b. some of the information shown on the certificate is no longer legible
- c. the legal name of the worker was officially changed, as mandated in subsection 12.1.

All requests for a replacement certificate shall be submitted in writing in accordance with subsection 5.4 and contain the following information:

- a. the purpose and the rationale for the request
- b. the legal name of the worker, as shown on the most recent certificate issued to the worker
- c. the new legal name that is to appear on the replacement certificate, as applicable
- d. the title of the designated position shown on the certificate
- e. the corporate name of the licensee employing the worker
- f. the legal name, position, contact information and signature of an authorized licensee representative
- g. the effective date of the request

## **Part II – Licensee Organizational and Physical Infrastructures**

Part II describes the organizational and physical infrastructures that the licensee must implement to support the personnel certification scheme described in Part I and achieve the worker qualifications specified in Part III.

### **Subpart A – Organizational Infrastructure**

#### **13. Policies and Procedures**

##### **13.1 Training and qualifying workers for initial certification**

The licensee shall establish and document effective policies and procedures to train and qualify the workers seeking certification for employment in designated positions.

##### **13.2 Maintaining the qualification of certified workers**

The licensee shall establish and document effective policies and procedures to train and maintain the qualification of the certified workers employed in designated positions.

#### **14. Personnel Selection Program**

The licensee shall implement and document a personnel selection program that ensures the selection of suitable candidates for entry in the initial training programs referenced in this regulatory document.

##### **14.1 Personnel selection program requirements**

As an integral part of the personnel selection program, at a minimum and for each designated position identified in the licence, the licensee:

- a. shall set a minimum prior education level or minimum literacy and numeracy levels commensurate with the duties of the designated position and consistent with the entry level of a suitable initial training program
- b. shall require that candidates selected on the basis of their prior education level provide a diploma or other official proof of successful completion of a suitable course of study issued by a recognized educational institution or learning provider
- c. may recognize equivalencies to any minimum education, literacy, or numeracy level set by the licensee
- d. shall use standardized tests and proven methods to assess whether or not candidates selected on the basis of a literacy or numeracy level, or a recognized equivalency, do in fact meet the applicable minimum standards
- e. shall determine whether or not prior work experience may be desirable or essential and, when deemed essential, develop plans and procedures to ensure candidates gain relevant work experience prior to their entry in a suitable initial training program
- f. shall identify attributes and aptitudes deemed essential to safely and competently perform the duties of the designated position, including integrity, leadership, and resilience, as may be pertinent, and select candidates accordingly
- g. may use standardized tests and proven methods, or require a medical assessment performed by a licensed physician, to assess whether or not candidates have any permanent, physical or

mental limitation that would prevent them from performing the duties of the pertinent designated position safely and competently

### **Guidance**

Prior education – The licensee should set personnel selection criteria based on a considered rationale, and avoid setting prescriptive requirements for the sake of expediency, including specific education prerequisites, if suitable candidates may thereby be unduly excluded. The CNSC recognizes that modern learners may acquire acceptable levels of prior knowledge and literacy through various methods and avenues, including distance learning and homeschooling, and from jurisdictions other than provincial authorities, depending on individual circumstances.

Work experience – In the context of the personnel selection program, relevant work experience means any employment in a role or position of an operational or technical nature providing:

- a. the candidate with:
  - i. meaningful exposure to the organization and the daily operation of a reactor facility in some way relevant to the duties of the pertinent designated position
  - ii. an opportunity to develop transferable knowledge and skills (K&S) and safety-related attributes that will eventually be valuable to the successful candidate once employed in a designated position
- b. the management team with an opportunity to evaluate the prospective candidate against the pertinent personnel selection criteria, in particular any essential safety-related attributes, including integrity, leadership and resilience, as applicable

## **14.2 Personnel selection criteria**

### **14.2.1 Basic prerequisites**

Candidates selected for entry in any initial training program referenced in this regulatory document shall:

- a. have demonstrated literacy and numeracy levels commensurate with the duties of the pertinent designated position
- b. have provided sufficient proof of any prior education level required by the CNSC or the licensee
- c. have gained any prior work experience required by the CNSC or the licensee
- d. possess all the safety-related attributes and aptitudes deemed essential by the licensee
- e. meet all other applicable position-specific selection criteria set by the licensee

### **14.2.2 Supplementary prerequisites for shift supervisors and senior health physicists**

In addition to meeting the applicable basic prerequisites, shift supervisor and senior health physicist (SHP) candidates shall, to the licensee's knowledge:

- a. possess known leadership skills or potential
- b. have consistently demonstrated a high level of integrity

### **14.3 Selection of reactor operators for shift supervisor training**

A worker certified or previously certified for employment as reactor operator (RO) at the reactor facility identified in the licence may be selected for entry in an initial training program for shift supervisor candidates in accordance with the requirements specified in this subsection.

#### **14.3.1 Performance as reactor operator**

Prior to being selected for shift supervisor training, the worker must:

- a. have performed the duties of an RO safely and competently
- b. be known to possess the safety-related attributes and aptitudes required of a shift supervisor

#### **14.3.2 Personnel selection exemption**

The licensee may, if the worker has been regularly employed as a certified RO for at least 4 calendar quarters, exempt the worker from any education level or work experience normally required of shift supervisor candidates.

#### **Guidance**

Regulatory intent – Since the worker is to be exempted from prerequisites considered essential by the licensee for other candidates, the worker is to have consistently demonstrated shift supervisor potential over a meaningful observation period.

Regular employment – “Regularly employed” means that the worker, at a minimum, met the pertinent quarterly minimum shift requirement; however, the required 4 calendar quarters need not be consecutive.

#### **14.3.3 Notification of selection for shift supervisor training**

The licensee shall notify the CNSC within a reasonable time frame when a worker referred to in this subsection enters an initial training program for shift supervisor candidates. This communication shall include:

- a. the full legal name of the worker
- b. a confirmation that the worker performed the duties of an RO safely and competently
- c. a confirmation that the worker possesses the safety-related attributes and aptitudes required of a shift supervisor
- d. a summary of any exemption explicitly sanctioned in sub-subsection 14.3.2 and employed as part of the selection of the worker, including the start and end dates of the observation period(s) adding to 4 calendar quarters in total

#### **Guidance**

In accordance with subsection 6.2, the application for certification includes a summary of any exemption(s) employed as part of the selection of the worker for shift supervisor training, in addition to the notification specified in this sub-subsection.

#### **14.4 Advancement to senior shift supervisor**

Any certified shift supervisor who, as a member of the minimum staff complement (MSC), exercises authority over any number of certified shift supervisors shall, prior to being employed in such a senior shift supervisor position, have been selected and trained by the licensee for the express purpose by means of a documented process meeting the requirements specified in this subsection.

The licensee shall not allow any worker to act as senior shift supervisor who is not duly qualified to exercise authority over other certified shift supervisors in accordance with the aforementioned process.

##### **Guidance**

**Applicability** – This subsection applies when the management system implemented at the reactor facility requires the presence of at least one senior shift supervisor having authority over at least one shift supervisor as part of the MSC.

**Special circumstances** – The CNSC recognizes that, at reactor facilities employing senior shift supervisors, the role and responsibilities of all shift supervisors may entail making safety-significant or otherwise time-sensitive decisions when the senior shift supervisor on duty is indisposed or unavailable. Nothing in this regulatory document should be construed as preventing any certified shift supervisor acting as a member of the MSC from making operational or safety-critical decisions normally delegated to the senior shift supervisor as the situation dictates.

##### **14.4.1 Minimum experience as shift supervisor prior to advancement**

The worker must have safely and competently performed the duties of a shift supervisor at the reactor facility identified in the licence for a minimum number of complete shifts acceptable to the CNSC, adding to a minimum number of hours of shiftwork acceptable to the CNSC.

##### **Guidance**

**Compliance scheme** – Appendix B specifies the minimum numbers of complete shifts and hours of shiftwork acceptable to the CNSC for the pertinent reactor facilities in service at the time of publication of the current version of this regulatory document.

##### **14.4.2 Supplemental training**

The worker must have successfully completed training based on a training system, including some on-the-job training (OJT), covering the K&S and safety-related attributes required to safely and competently perform the duties of the senior shift supervisor, as defined by the licensee's management system.

##### **14.4.3 Work under supervision**

The worker must have performed the duties of the senior shift supervisor under the supervision of a qualified senior shift supervisor for a number of complete shifts that the licensee considers necessary to confirm that the worker can perform said duties competently and safely.

#### **14.4.4 Notification of advancement to senior shift supervisor**

The licensee shall notify the CNSC within a reasonable time frame when a worker certified as shift supervisor has obtained a senior shift supervisor qualification. This communication shall include:

- a. the full legal name of the worker
- b. a summary, showing the effective date of completion in each case, of the requirements successfully met by the worker as part of the advancement process specified in this section

#### **14.5 Personnel transfer**

The licensee shall implement and document an effective personnel transfer process compliant with the requirements and guidance specified in this subsection.

##### **Guidance**

**Applicability** – This section applies to the case of a worker who will be seeking certification for employment in a designated position at the reactor facility identified in the licence (the gaining reactor facility) after being transferred from another reactor facility of an equal or comparable design (the ceding reactor facility). When a worker is transferred between reactor facilities differing significantly in design or concept of operation, the worker should be hired and trained as any other candidate in accordance with the established personnel selection process and by means of the full, applicable initial training program.

##### **14.5.1 Personnel transfer process**

As an integral part of the personnel transfer process, the licensee of the gaining reactor facility:

- a. shall request, from the licensee of the ceding reactor facility:
  - i. the training and qualification records and, if applicable, the certification examination history of the worker, including sufficient proof of any certification examination successfully completed by the worker
  - ii. confirmation that the worker performed their duties in a safe and competent manner, be it in a designated position or not
  - iii. confirmation that the worker is trustworthy
- b. shall ensure that the worker meets all of the applicable personnel selection criteria in effect at the gaining reactor facility prior to the worker's entering one of the initial training programs referenced in this regulatory document
- c. may administer a single or a series of standardized general knowledge test(s) based on proven methods to identify any gaps in the general knowledge of the worker
- d. may use the results of the aforementioned general knowledge test(s) as part of the basis for the development of an individual training needs analysis (ITNA) and an individual training plan (ITP), on a case-by-case basis
- e. may administer a general knowledge certification examination to the worker in order to ascertain that the worker possesses adequate general knowledge
- f. may employ one or both potential exemptions explicitly sanctioned in this subsection

## **Guidance**

Best practice – The CNSC recognizes that the gaining reactor facility licensee cannot be held accountable for a refusal, on the part of the ceding reactor facility licensee, to share personal information related to the worker, and will therefore not fault the licensee if the ceding facility refuses to transmit the information referenced under paragraph 14.5.1.a. Nevertheless, the gaining reactor facility licensee should ascertain, to the fullest extent possible, the suitability of the worker as a candidate for the applicable initial training program.

### **14.5.2 Initial training**

Except for the potential exemption explicitly sanctioned in sub-subsection 14.5.3, the worker shall successfully complete the same initial training that is administered to all workers seeking certification for employment in the pertinent designated position at the gaining reactor facility.

### **14.5.3 General knowledge training exemption**

The licensee is not obligated to administer additional general knowledge training to the worker if the worker has previously successfully completed general knowledge training that:

- a. is equivalent to the general knowledge training administered to all workers seeking employment in the same designated position at the gaining reactor facility
- b. was administered in accordance with the applicable requirements specified in this and complementary regulatory documents
- c. is, in all other respects, acceptable to the gaining reactor facility licensee

## **Guidance**

Limitation – The general knowledge training is the only component of any initial training program specified in this regulatory document from which the worker may be exempted.

SHP candidates – The licensee may exempt SHP candidates meeting the exemption criteria specified in this sub-subsection from the applicable general training program. However, such candidates shall successfully complete tailored training covering, at a minimum, the relevant station-specific knowledge.

### **14.5.4 Certification examinations**

Except for the potential exemption explicitly sanctioned in sub-subsection 14.5.5, the worker shall successfully complete the same certification examinations as those administered to all workers seeking certification for employment in the pertinent designated position at the gaining reactor facility.

### **14.5.5 General knowledge examination exemption**

The licensee is not obligated to administer an additional general knowledge certification examination to the transferred worker if the worker previously received a passing grade on a general knowledge examination that:

- a. is equivalent to the general knowledge examination administered to all workers seeking employment in the same designated position at the gaining reactor facility



- b. was administered by qualified examiners in accordance with the conditions set in the gaining reactor facility licence or accompanying document, including any detailed requirements specified in documents referenced in the licence or accompanying document
- c. is, in all other respects, acceptable to the gaining reactor facility licensee

### **Guidance**

Limitation – The general knowledge certification examination is the only personnel certification examination from which the transferred worker may be exempted. Furthermore, SHP candidates are not eligible for the exemption specified in this sub-subsection, since CNSC staff administer SHP certification examinations and requalification tests covering both the general and station-specific knowledge.

#### **14.5.6 Notification of personnel transfer**

The licensee shall notify the CNSC within a reasonable time frame when a worker referred to in this subsection enters an initial training program referenced in this regulatory document. This communication shall include:

- a. the full legal name of the worker
- b. a summary of any exemption(s) explicitly sanctioned in subsection 14.5 and employed as part of the selection of the worker, including, as applicable:
  - i. the start and end dates of the general training referenced as basis for the exemption and the licensee and reactor facility responsible for the associated general training program
  - ii. the date on which the general certification examination referenced as basis for the exemption was administered and the licensee and reactor facility responsible for its administration

#### **14.5.7 Added information upon application for certification**

At the time of application for certification, the worker shall meet all of the personnel certification requirements applicable to any worker seeking certification for employment in the pertinent designated position at the reactor facility identified in the licence.

In addition to the requirements specified in subsection 6.2 and the notification specified in this subsection, the application for certification shall include a summary of any ITNA, ITP and certification examination employed as part of the transfer of the worker.

### **Guidance**

Exemption basis – The potential exemptions referenced in this section assume an adequate degree of equivalency between the general training and the general knowledge examination successfully completed by the candidate and those administered at the gaining reactor facility. The CNSC is not obligated to certify any worker previously granted an exemption by the licensee if the CNSC is not satisfied that a sufficient degree of equivalency did in fact exist when the exemption was granted. The licensee should consult CNSC staff when in doubt.

Licensee discretion – The potential exemptions referenced in this section are not mandatory. The gaining reactor facility licensee remains free to require that the transferred worker successfully complete additional general training and an additional general knowledge examination, regardless

of any general training or certification examination previously successfully completed by the transferred worker.

## **15. Training Programs**

### **15.1 Initial training programs**

The licensee shall implement and document initial training programs specifically designed to prepare workers for employment in each designated position identified in the licence, and to qualify the said workers for certification by the CNSC in accordance with the applicable worker qualifications specified in Part III.

### **15.2 Continuing training programs**

The licensee shall implement and document continuing training programs specifically designed to maintain the competency of workers employed in each designated position identified in the licence, and to requalify the said workers prior to the renewal of their certification by the CNSC in accordance with the applicable worker requalification requirements specified in Part III.

#### **Guidance**

Purpose – The purpose of the continuing training programs is to ensure that certified workers:

- a. retain the essential K&S and safety-related attributes acquired during their initial training
- b. acquire new K&S and safety-related attributes as necessary to deal successfully with the relevant procedural and technical changes implemented over time

#### **15.2.1 Update training**

The pertinent continuing training programs shall include suitable update training, including formal knowledge and performance-based evaluations, covering any relevant technical or procedural changes implemented at the reactor facility identified in the licence, as well as the relevant lessons learned by the industry over time, including, but not limited to:

- a. changes to reactor facility systems and subsystems
- b. changes to licensee and station-specific policies, standards, and procedures
- c. amendments to, or exemptions from, regulatory requirements
- d. amendments to the licence or to documents referenced in the licence
- e. station-specific and industry operational experience and operating events

The licensee shall deliver the knowledge update training referenced in this regulatory document promptly following the occurrence of the initiating change or event using effective instructional methods, including suitable simulator-based training whenever pertinent.

#### **Guidance**

Regulatory expectation – In order to ensure that certified workers can perform their duties safely and competently at all times, update training is to be delivered in a timely manner. Certified workers should attend update training as soon as feasible depending on circumstances and the safety significance of the change(s). Safety-critical changes should be communicated to

operations personnel during turnovers if update training cannot be delivered to the shift crew beforehand.

### **15.2.2 Refresher training**

The pertinent continuing training programs shall incorporate suitable refresher training, including formal knowledge and performance-based evaluations, covering the essential K&S and safety-related attributes that certified workers acquired during their initial training and which must be periodically reviewed and applied to ensure adequate retention.

The licensee shall deliver the knowledge refresher training referenced in this regulatory document on a regular basis and according to a training cycle not exceeding 5 years using effective instructional methods, including suitable simulator-based training whenever pertinent.

#### **Guidance**

Best practice – Allowing for individual circumstances, certified workers should attend sufficient refresher training to review all the applicable K&S and safety-related attributes during each 5-year certification period preceding a renewal of their certification.

### **15.2.3 Simulator-based continuing training for operations personnel**

The continuing training programs for operations personnel shall include suitable simulator-based training designed to ensure that operations personnel maintain their qualification by applying their K&S and safety-related attributes through recurrent performance-based training covering varied simulated scenarios under normal, abnormal and, to the extent possible, emergency conditions.

At a minimum, the continuing simulator-based training for operations personnel shall include:

- a. simulator-based exercises covering the normal reactor manoeuvres and plant evolutions infrequently performed by certified workers while on duty
- b. simulator-based exercises covering varied scenarios:
  - i. challenging the diagnostic and decision-making abilities of certified workers
  - ii. ensuring that certified workers remain proficient in selecting and executing the correct operational procedures under abnormal and emergency conditions
- c. exercises and drills ensuring that certified workers are ready to respond to accidents and emergencies

#### **Guidance**

Best practice – The simulator-based continuing training should in particular cover those situations requiring that safety-significant and time-sensitive decisions be made and implemented promptly in order to prevent harm to workers, the public or the environment.

### **15.2.4 Nuclear emergency response training**

The licensee shall conduct, on a periodic basis, nuclear emergency response training to ensure that certified workers are adequately prepared to respond to credible beyond-design-basis accidents and manage nuclear emergencies in accordance with the established emergency operating procedures and severe accident management guidelines.

## **Guidance**

Instructional strategies and methods – Nuclear emergency response training should focus on the roles and responsibilities relevant to certified workers, and may be delivered through any effective means, from classroom (tabletop) exercises to the participation of certified workers in full-scale nuclear emergency response exercises.

Complementary regulatory documents – Further requirements and guidance pertinent to the personnel involved in accident management and in nuclear emergency preparedness and response can be found in the relevant complementary regulatory documents listed as “Additional Information” in the last section of this regulatory document.

### **15.3 Training system for reactor facilities**

The initial and continuing training programs referenced in this regulatory document shall be consistent with a training system for reactor facilities acceptable to the CNSC.

When the licensee contracts out, in whole or in part, any aspect of the training referenced in this regulatory document, the licensee shall ensure that the requirements and guidance specified in this and any relevant complementary regulatory document are complied with by the contracted party or parties.

## **Guidance**

Instructional strategies and methods – In implementing and administering the initial and continuing training referenced in this regulatory document, the licensee is free to employ any effectual instructional strategies and any combination of recognized instructional methods, including self-paced learning, remote learning, and e-learning.

Complementary regulatory document – Further requirements and guidance pertaining to personnel training, including training systems, can be found in the relevant complementary regulatory documents listed as “Additional Information” in the last section of this regulatory document.

Training program samples – Appendix D contains examples of training programs initially implemented at CANada Deuterium Uranium (CANDU) reactor facilities and found acceptable by the CNSC. Notwithstanding this added guidance, a suitable training program is based on a reactor facility training system, as mandated by the CNSC.

### **15.4 Formal learner evaluations**

All training programs and tailored training referenced in this regulatory document shall include formal learner evaluations, either knowledge-based or performance-based as appropriate, designed to assess the progress of each learner during the course of said training.

The licensee shall administer all such formal learner evaluations in accordance with a documented process specifying:

- a. the number and scope of the formative and summative evaluations deemed necessary to monitor candidate progress in relation to pertinent training segments and milestones

- b. the requirements and procedures applicable to the design, development, conduct and grading of the evaluations
- c. the qualification requirements for the personnel tasked with designing, developing, conducting, and grading the evaluations

All formal learner evaluations shall be administered either by qualified trainers or by qualified examiners as part of a documented instructional strategy.

### **Guidance**

Purpose – The purpose of the formal learner evaluations differs from that of the certification examinations and requalification tests in that the former provide timely measures of learner progression throughout training, while the latter serve as formal proof of worker competency for the purpose of seeking certification by the CNSC. The results of the learner evaluations can also be used to provide learners with feedback, and to help managers and trainers determine an appropriate time, on a group or individual basis, when the examiners should administer the personnel certification examinations and the requalification tests required by the CNSC.

### **15.5 Trainer qualifications**

The licensee shall ensure that the personnel tasked with administering the training and formal learner evaluations referenced in this regulatory document are duly qualified to administer training and formal learner evaluations to the workers certified or seeking certification by the CNSC.

## **16. Certification Examinations and Requalification Testing**

### **16.1 Separation of the training and examination functions**

The licensee shall ensure that, to the greatest extent possible, adequate separation and an arm's-length relationship are maintained between the trainers delivering the training referenced in this regulatory document and the examiners administering certification examinations and requalification tests on behalf of the CNSC. At a minimum:

- a. no knowledge or performance-based certification examination or requalification test administered in accordance with the requirements specified in this regulatory document shall be designed, developed, conducted, or graded, in whole or in part, by an examiner acting as trainer to any of the candidates undergoing the examination or test
- b. no trainer or examiner shall benefit, financially or otherwise, from the success rate of the candidates undergoing any formal learner evaluation, certification examination, or requalification test referenced in this regulatory document.

### **Guidance**

Purpose – The purpose of maintaining sufficient separation between trainers and examiners is to ensure that the primary proof of competency required by the CNSC at the time of certification or certification renewal, namely the results of the certification examinations or requalification tests, was obtained by qualified examiners independently of the pertinent trainers. In the personnel certification context, the examiners' opinion of worker competency must be an autonomous validation of the trainers' opinion on the matter since the examiners are tasked with representing the certifying body rather than the employer. This separation is a fundamental aspect of best

practice for certifying bodies. The Commission or DO requires satisfactory proof of competency in order to form a sensible opinion of worker competency prior to making any personnel certification decision.

Best practice – Ideally, the training and examination personnel should be members of distinct staffs, led by different managers; however, the CNSC recognizes that this level of separation is neither essential nor always feasible.

## **16.2 Certification examinations**

The licensee shall ensure that the knowledge and performance-based certification examinations referenced in this regulatory document are designed, developed, conducted, and graded by qualified examiners in accordance with the applicable CNSC requirements specified or referenced in the licence or any accompanying documentation.

## **16.3 Requalification testing**

The licensee shall ensure that the knowledge and performance-based requalification tests referenced in this regulatory document are designed, developed, conducted, and graded by qualified examiners in accordance with the applicable CNSC requirements specified or referenced in the licence or any accompanying documentation.

## **16.4 Security of certification examinations and requalification tests**

The licensee shall implement and document effective policies and procedures to control access to, and the use of, the formal learner evaluations, certification examinations and requalification tests referenced in this regulatory document.

The associated security measures shall meet the following minimum requirements:

- a. Only personnel with a valid need to know shall have access to the pertinent formal learner evaluations, certification examinations and requalification tests, as well as any associated documentation and materials providing a direct clue as to their content.
- b. Trainers shall not have access to, or prior knowledge of, the specific content of any certification examination or requalification test administered to their learners.
- c. Answers to modified essay question (MEQ) examinations and tests shall be protected from unauthorized access.
- d. Answer keys to multiple choice question (MCQ) examinations and tests shall be protected from unauthorized access.
- e. Any repository, physical or virtual, containing MEQ or MCQ examinations and test questions shall be protected from unauthorized access.
- f. In order to discharge their duties, CNSC staff participating in compliance verification activities shall be exempt from any security measure established by the licensee in accordance with the requirements specified in this subsection.

## **Guidance**

CNSC staff access – CNSC staff will take appropriate precautions consistent with the security standards applicable to federal employees and the security measures specified in this subsection. In addition, CNSC staff will respect the pertinent licensee procedures to the fullest extent possible. However, no CNSC inspector or any other member of an inspection team may be denied

access to any information required by CNSC staff members to discharge their duties under the NSCA.

### **16.5 Examiner qualifications**

The licensee shall ensure that the personnel tasked with administering the certification examinations and requalification tests referenced in this regulatory document have successfully completed suitable training and are duly qualified to administer certification examinations and requalification tests to the workers certified or seeking certification by the CNSC.

## **17. Work Under Supervision**

The licensee shall establish and document, for each pertinent designated position identified in the licence, effective procedures for the administration of the work under supervision (WUS) referenced in this regulatory document.

All mandatory WUS periods shall meet the following objectives:

- a. WUS shall provide the worker being evaluated with a meaningful opportunity to demonstrate a functional level of competency and the ability to stand solo shifts as lead operator or shift supervisor
- b. WUS shall provide operations managers with a sufficient observation period to confirm that the worker being evaluated can be trusted to stand solo shifts as lead operator or shift supervisor and can perform the pertinent duties safely and competently

When implemented as part of an initial training program, WUS shall not begin until the responsibility for the learner's performance has been transferred from the training authority to the operations authority.

### **Guidance**

Supervising authority – Given that WUS primarily serves a performance evaluation function rather than a training function, WUS periods are supervised by certified operations personnel under the authority of the operations management team. When attending an initial training program, the learner should have acquired a functional level of competency prior to the start of the WUS period.

On-the-job training – Notwithstanding the primary purpose of the mandated WUS, the licensee may conduct OJT and mentorship during any WUS period, notably as an integral part of an initial training program.

## **18. Management Interviews**

The licensee shall establish and document effective procedures for preparing and conducting the various management interviews referenced in this regulatory document.

Each mandatory management interview shall serve an evaluation function and:

- a. be conducted orally by a minimum of one manager authorized to represent the licensee and to conduct the interview

- b. provide the worker being evaluated with a meaningful opportunity to demonstrate an adequate level of competency
- c. provide at least one member of the operations management team with a meaningful opportunity to make a final determination of worker competency
- d. be recorded in writing or via any other retrievable medium, the record of which shall be retained and made available to the CNSC upon request

### **Guidance**

Purpose – The purpose of the management interview is to ensure that the licensee and the operations management team make a final determination of adequate worker competency and take ownership of each candidate individually, prior to their presentation for CNSC certification or their reinstatement to duty following a removal for cause.

## **19. Administrative Policies and Procedures Applicable to Workers in Training**

The policies and procedures specified in this section apply to any worker, whether certified or not, who is attending one of the initial training programs referenced in this regulatory document, in the context of, and in relation to, said training.

### **19.1 Reintegration of a worker in training following a prolonged training interruption**

The licensee shall establish and document an effective process to manage the case of any worker reintegrating an initial training program after a prolonged training interruption. As an integral part of this process, the licensee shall:

- a. determine the need for, and perform as necessary, a formal learner evaluation, including knowledge and performance-based testing as warranted, to assess the K&S retention of the worker and to identify any K&S gap that the worker may have developed during the period of absence
- b. determine the need for tailored training based on an individual training needs analysis (ITNA), considering any K&S forgotten by the worker and any changes or updates to the essential K&S and safety-related attributes that occurred during the period of absence
- c. formulate and implement an individual training plan (ITP) as may be necessary
- d. ensure that the worker, at a minimum, successfully completes any training and formal learner evaluation(s) missed during the period of absence
- e. determine a suitable point of re-entry into the pertinent initial training program

At a minimum, any worker who is absent from an initial training program for a period of 6 months or more shall undergo a formal reintegration process meeting the requirements specified in this subsection.

### **Guidance**

Best practice – The licensee should ensure, on a case-by-case basis, that all workers who absent themselves from initial training to any significant extent are evaluated in order to ensure adequate



K&S retention prior to their reintegration into an initial training program. However, when the absence is shorter than 6 months, formal reintegration is at the licensee's discretion.

## **20. Administrative Policies and Procedures Applicable to Certified Workers**

The policies and procedures specified in this section apply to all certified workers in the context of, and in relation to, their employment in the pertinent designated position(s).

### **20.1 Fitness for duty**

The licensee shall implement and document effective fitness-for-duty policies and procedures providing the CNSC with reasonable assurance that certified workers are free of any physical or mental impairment that could hinder their ability to perform the duties of the pertinent designated position(s) safely and competently.

The fitness-for-duty policies and procedures applicable to certified workers shall be implemented consistently with the requirements and guidance specified in this and complementary regulatory documents regarding fitness for duty, including those related to the management of worker fatigue and the management of alcohol and drug use.

#### **Guidance**

Complementary regulatory documents – Further requirements and guidance pertaining to the management of worker fatigue and the management of alcohol and drug use, including testing, can be found in the relevant complementary regulatory documents listed as “Additional Information” in the last section of this regulatory document.

### **20.2 Minimum employment of certified workers**

The licensee shall ensure that certified workers are employed in the designated position(s) specified on their certificate(s) to the extent necessary to maintain an adequate competency level throughout the full duration of their certification.

#### **20.2.1 Minimum shift requirement for operations personnel**

Certified shift workers shall perform the duties of the pertinent designated position(s) for a minimum number acceptable to the CNSC of complete shifts per calendar quarter amounting to a minimum number acceptable to the CNSC of hours of shiftwork per calendar quarter.

Each certified shift worker shall perform the mandated minimum employment as a member of the minimum staff complement, as opposed to in any back-up or supernumerary capacity, and, to the fullest extent possible, in relation to a fuelled and operating reactor or group of reactors.

#### **Guidance**

Purpose – The purpose of the minimum employment requirement is to ensure that certified workers performing shiftwork are exposed to the duties of the pertinent designated position at a sufficient frequency to maintain an adequate competency level. This minimum employment is primarily aimed at those routine tasks that are neither safety-significant nor time-sensitive, and that may therefore be performed while on duty without negatively impacting nuclear safety.

Safety-significant or time-sensitive K&S should be systematically covered during continuing training.

Minimum requirement – The licensee is not obligated to ensure that every single shift worked by certified shift workers meets the requirements and guidance specified in this subsection, as long as each certified shift worker is sufficiently employed so as to meet the applicable minimum employment requirement on a quarterly basis.

Compliance scheme – Appendix B specifies the minimum shift requirements acceptable to the CNSC for the pertinent reactor facilities in service at the time of publication of the current version of this regulatory document.

Complete shift – A complete shift means a minimum of 4 consecutive hours of work in a designated position as an operator or shift supervisor that is preceded by a formal turnover of the responsibilities for the shift with an outgoing counterpart and that is concluded by an equal turnover with an incoming counterpart.

Normal shift duration – The CNSC acknowledges that the licensee may implement, either as the norm or to manage work schedules on an individual basis, varied but equally effective shift rotations and durations, including, but not limited to, a normal shift duration of 12 hours.

Minimum shift duration – Considering the known concerns and existing limits related to worker fatigue, the CNSC will not define a minimum shift duration other than the aforementioned minimum duration of 4 consecutive hours. This minimum duration is specified merely to ensure that each complete shift recorded for the purpose of meeting a minimum shift requirement provides meaningful exposure to the duties of the pertinent designated position.

Reasonable accommodation – In order to provide the licensee with sufficient flexibility to manage individual circumstances, including, but not limited to, workers suffering from chronic illnesses or pain, certified shift workers are free to perform complete shifts of any acceptable minimum duration as long as the applicable minimum number of complete shifts and total hours of shiftwork are met on a quarterly basis.

Senior shift supervisors – Once duly qualified, senior shift supervisors are permitted to perform the duties of any applicable site-specific shift supervisor position listed in Appendix A, and may therefore stand shifts in either or both the shift supervisor and the senior shift supervisor positions interchangeably in order to meet an applicable quarterly minimum shift requirement.

### **20.2.2 Minimum shift requirement deferment**

When a certified shift worker fails to meet, during any given calendar quarter, an applicable minimum shift requirement, the omitted number of complete shifts and hours of shiftwork shall be performed in the following calendar quarter, in addition to the minimum shift requirement strictly applicable to said calendar quarter.

### **20.2.3 Minimum employment of senior health physicists**

The licensee shall ensure that workers certified for employment as an SHP regularly perform the duties of an SHP throughout the full duration of their certification.

### **20.3 Management of prolonged unemployment**

Any certified worker shall be formally removed from the duties of the pertinent designated position and assigned an inactive employment status who, for a period lasting 6 consecutive months or more, regardless of the rationale, is or will be unable to:

- a. attend the scheduled continuing training
- b. meet an applicable quarterly minimum shift requirement

#### **Guidance**

**Applicability** – This subsection applies to any certified worker who meets one or both of the prolonged unemployment criteria regardless of the circumstances. Relevant circumstances encompass, but are not limited to, any competing work assignment, including a temporary or permanent reassignment inside or outside the reactor facility, and any prolonged leave of absence, including sabbatical, medical, parental, and maternity leave. In addition, any worker holding a valid certificate who ceases to attend continuing training or meet the applicable minimum employment requirement, be it voluntarily or not, including due to a planned retirement, should likewise be formally removed from duty in accordance with this subsection and may be reinstated to duty in accordance with the baseline reinstatement process specified in subsection 20.5, as the situation later dictates.

### **20.4 Removal from duty for cause**

Any certified worker who meets any one of the criteria specified in this subsection shall be formally removed from the duties of the pertinent designated position for cause and assigned either an inactive or uncertified employment status as applicable.

#### **20.4.1 Failure to meet a minimum employment requirement**

The worker has failed to meet an applicable quarterly minimum shift requirement for 2 consecutive calendar quarters.

#### **Guidance**

**Applicability** – This criterion applies to a certified shift worker who was expected to meet an applicable minimum shift requirement and has already failed to meet said requirement for 2 consecutive calendar quarters. Workers who are unable to perform sufficient shiftwork due to a prolonged absence or a competing work assignment should be managed under the prolonged unemployment provisions specified in subsection 20.3.

#### **20.4.2 Requalification test failure**

The worker has failed a requalification test, be it in a lead or supporting role.

#### **20.4.3 Inability to work safely and competently**

The worker was the subject of a verified positive alcohol or drug test administered in accordance with the fitness-for-duty program mandated by the CNSC, or is otherwise deemed unfit, by the

licensee, to perform the duties of a designated position safely and competently for any reason, including, but not limited to:

- a. a medical or physical condition, be it permanent or temporary
- b. a mental health condition, be it permanent or temporary
- c. inadequate performance while on duty, including any action or decision that puts at risk the health and safety of workers, the public or the environment
- d. a demonstrated unwillingness or failure to take the necessary precautions to protect the health and safety of workers, the public or the environment
- e. a demonstrated lack of integrity or trustworthiness

### **Guidance**

Applicability – In regard to any medical, physical, or mental health condition, the removal from duty criterion applies to the case of a certified worker who must be removed from duty by the licensee, with or without the worker’s consent, because the resulting physical, physiological, or mental impediment interferes with the worker’s ability to perform the duties of the pertinent designated position safely and competently, regardless of the expected duration of the condition.

#### **20.4.4 Certificate expiry**

The certificate of the worker has expired.

#### **20.4.5 Proposed decision not to certify or to decertify**

The worker was identified by the CNSC as the worker concerned in a proposed decision not to certify, or a proposed decision to decertify, while a final decision by the Commission or a DO remains pending.

### **Guidance**

Rationale for removal – In accordance with section 11, both the worker and the licensee have 30 calendar days to request an opportunity to be heard. When, in addition to this minimum time frame, an opportunity to be heard is requested, the final decision by the Commission or a DO may be significantly delayed. Since the worker remains certified throughout the whole of the proceedings, while the Commission or a DO has reason to decertify or refuse to certify the worker, the worker is to be removed from the duties of the pertinent designated position until the Commission or a DO has reached a final decision.

#### **20.5 Baseline reinstatement process**

No certified worker who has been formally removed from the duties of a designated position shall be allowed to perform said duties until the worker has successfully undergone a suitable baseline reinstatement process compliant with the requirements specified in this subsection.

### **Guidance**

Applicability – The baseline reinstatement process applies to all certified workers removed from duty, regardless of the rationale. The remediation process specified in subsection 20.6 is in

addition to the baseline reinstatement process but applies only to certified workers removed from duty for cause.

#### **20.5.1 Update training**

The worker must have completed suitable update training covering any relevant technical or operational changes implemented, and any relevant lessons learned, while the worker was formally removed from the duties of the designated position, including, but not limited to:

- a. changes to reactor facility systems and subsystems
- b. changes to licensee and station-specific policies, standards, and procedures
- c. amendments to, or exemptions from, regulatory requirements
- d. amendments to the licence or to documents referenced in the licence
- e. station-specific and industry operational experience and operating events

#### **20.5.2 Refresher training**

The worker must have successfully completed suitable refresher training commensurate with the duration of the period of absence or removal from duty of the worker.

At a minimum, this refresher training shall encompass any scheduled refresher training that the worker failed to attend while the worker was formally removed from the duty.

#### **20.5.3 Simulator-based training**

For operations personnel, the worker must have successfully completed suitable simulator-based training covering a number and variety of scenarios commensurate with the duration of the period of absence or removal from duty of the worker.

At a minimum, this simulator-based training shall challenge the diagnostic and decision-making skills of the worker and encompass any scheduled simulator-based training that the worker failed to attend during the period of absence or removal from duty.

#### **20.5.4 Work under supervision**

For operations personnel, the worker must have successfully performed the duties of the pertinent designated position under the supervision of a qualified worker certified for employment in the same designated position, and for a number of complete shifts deemed sufficient by the licensee to confirm that the worker can perform said duties competently and safely.

#### **20.5.5 Management interview**

When removed from duty for cause, the worker must have successfully undergone a formal management interview.

## **Guidance**

Applicability – The management interview is not mandatory for workers being reinstated to duty after a period of prolonged unemployment.

### **20.6 Remediation following removal from duty for cause**

In addition to the baseline reinstatement process specified in subsection 20.5, no certified worker who has been removed from duty for cause based on one of the criteria defined in subsection 20.4 shall be allowed to perform the duties of the pertinent designated position until the worker has successfully undergone suitable remediation consistent with the applicable cause for the removal, as further specified in this subsection.

#### **20.6.1 Failure to meet a minimum employment requirement**

The licensee may reinstate a worker to the duties of the pertinent designated position following a failure to meet a minimum employment requirement, if:

- a. the circumstances that prevented the worker from performing the duties of the pertinent designated position no longer exist
- b. the worker has performed, under the supervision of a qualified worker certified for employment in the pertinent designated position, a number of complete shifts and hours of shiftwork no less than the minimum number of complete shifts and hours of shiftwork that the worker failed to complete in the quarter preceding the removal from duty

#### **20.6.2 Requalification test failure**

The licensee may reinstate a worker to the duties of the pertinent designated position following a requalification test failure once the worker has successfully completed a remedial requalification test equivalent to the failed requalification test.

This remedial requalification test shall be equivalent in all respects, but must not be the same as the failed requalification test or any other remedial requalification test the candidate may have failed as part of the reinstatement process. Furthermore, any restrictions set in complementary documents regarding the allowed topic overlap between requalification tests shall apply.

#### **20.6.3 Inability to work safely and competently**

The licensee may reinstate a worker to the duties of the pertinent designated position following a removal from duty due to an inability to work safely and competently if the basis for the removal from duty has been adequately remedied or mitigated or no longer exists.

#### **20.6.4 Certificate expiry**

The licensee may reinstate a worker to the duties of the pertinent designated position following a certificate expiry if and when officially informed of the Commission's or DO's decision to recertify the worker.

**Guidance**

When the Commission or DO intends not to recertify the worker, a proposed decision not to certify will be made, in which case sub-subsection 20.4.5 applies.

**20.6.5 Proposed decision not to certify or to decertify**

The licensee may reinstate a worker to the duties of the pertinent designated position who was the subject of a proposed decision not to certify, or a proposed decision to decertify, if and when officially informed of the Commission's or DO's decision to certify, or not to decertify, the worker.

**Guidance**

When the Commission's or DO's final decision is to not certify or to decertify the worker, the worker is no longer certified by the CNSC as qualified to perform the duties of the pertinent regulated position, and the staffing restriction set in subsection 4.2 applies.

**20.7 Notification of change in employment status****20.7.1 Notification of removal from duty**

The licensee shall promptly inform the CNSC of any certified worker removed from the duties of a designated position, be it due to a prolonged period of unemployment or a removal for cause, specifying:

- a. the full legal name of the worker
- b. the pertinent designated position
- c. the resulting employment status assigned to the worker as per subsection 3.2
- d. the basis for the removal from duty as per subsection 20.3 or 20.4, as applicable

**20.7.2 Notification of reinstatement to duty**

The licensee shall promptly inform the CNSC of any certified worker reinstated to the duties of a designated position, to include:

- a. the full legal name of the worker
- b. the pertinent designated position
- c. the resulting employment status assigned to the worker as per subsection 3.2
- d. the basis for the prior removal from duty and a confirmation that said basis no longer exists or has been adequately remedied or mitigated, as applicable
- e. a summary of the baseline reinstatement process successfully completed by the worker
- f. when following a removal for cause, a summary of any remediation action(s) taken to satisfy the applicable requirements specified in subsection 20.6

## **Guidance**

Applicability – Items 20.7.2.e and 20.7.2.f are not mandatory following a recertification, since the CNSC is made aware of the particulars of the case by means of the recertification process.

## **21. Information Management**

The licensee shall implement and document effective information management policies and procedures ensuring:

- a. the retention and ready retrieval of the corporate documentation and proof-of-competency records related to personnel certification
- b. the safeguard and control of sensitive information pertaining to personnel certification
- c. the unrestricted access, by authorized CNSC staff, to the corporate documentation and personnel records specified in this section

### **21.1 Corporate documentation**

#### **21.1.1 Roles and responsibilities**

The licensee shall document, retain, and make available to the CNSC upon request, the roles and responsibilities of:

- a. certified workers
- b. all personnel, including management, involved in the training and qualification of workers seeking or holding a certification, including trainers, examiners, and managers delegated with relevant approval authorities

#### **21.1.2 Operational procedures**

The licensee shall retain, and make available to the CNSC upon request, a copy of the latest version of the licensee and station-specific policies, procedures and technical diagrams referenced by certified workers to perform the duties of the designated positions safely and competently, including those related to:

- a. operating policies and principles
- b. worker performance expectations
- c. radiation protection
- d. normal and abnormal operations
- e. abnormal incidents
- f. power reduction actions
- g. severe accident management

#### **21.1.3 Training and qualifying governance**

For each designated position referenced in the licence, the licensee shall document, retain, and make available to the CNSC upon request, the policies, standards, and procedures for training and qualifying the workers seeking a certification, and for training and maintaining the qualification of the workers holding a certification, including the procedures for:

- a. administering the initial and continuing training



- b. preparing and administering the formal learner evaluations administered as part of the initial and continuing training
- c. preparing and administering certification examinations and requalification tests
- d. managing work under supervision (WUS) periods
- e. preparing and administering management interviews
- f. maintaining comprehensive and accurate personnel records

#### **21.1.4 Trainer and examiner qualifications**

The licensee shall document, retain, and make available to the CNSC upon request, a record of the qualifications of the trainers and examiners referenced in this regulatory document.

### **21.2 Personnel records**

For each worker certified or seeking certification for employment in a designated position, the licensee shall retain, and make available to the CNSC upon request, adequate personnel records for a retention period equal to the duration of the employment of the worker, be it as an employee or a contractor, plus 5 years after the worker ceases to be employed in any capacity.

At a minimum, said personnel records shall encompass:

- a. Education or literacy level – The name and address of any educational institution or learning provider from which the worker obtained an accreditation, including any diploma, degree or certificate, and a copy of any diploma, degree or certificate required by the licensee’s personnel selection program.
- b. Prior work experience – Comprehensive records of any employment period(s) required by the licensee’s personnel selection program, or as part of the mandated plant familiarization training, including, in each case, the name of the employer, the address of the work site, and the effective start and end dates.
- c. Personnel selection interviews and tests – Comprehensive records of any personnel selection interview or test, including the effective date and results in each case, administered as part of the licensee’s personnel selection program.
- d. Personnel transfer – Comprehensive records of any information required or collected as part of a personnel transfer.
- e. Advancement – Comprehensive records of any information required or collected as part an advancement to a shift supervisor or senior shift supervisor position.
- f. Training – Comprehensive records of the initial training and continuing training successfully completed by the worker, including the start and end dates of each distinct training period or milestone.
- g. Formal learner evaluations – Comprehensive records of the formal learner evaluations administered to the worker as part of their initial or continuing training, including, in each case, the dates on which the evaluations were conducted, the results, and the full legal name(s) of the evaluator(s).
- h. Work under supervision – Comprehensive records of any WUS performed by the worker, including, in each case, the associated requirement being met, the date of each shift worked under supervision, and the full legal name of, and the CNSC certification held by, the certified worker who supervised the worker.
- i. Management interviews – Comprehensive records of the management interviews undergone by the worker, including, in each case, the date of the interview, the full legal name(s) and position(s) of the interviewer(s), and a verbatim or summary description of the questions and answers exchanged during the interview.

- j. Certification examinations – The certification examination records referenced in the licence or any accompanying documentation, or any complementary regulatory document referenced in this regulatory document, the licence or any accompanying documentation.
- k. Requalification tests – The requalification testing records referenced in the licence or any accompanying licensing documentation, or any complementary regulatory document referenced in this regulatory document, the licence or any accompanying licensing documentation.
- l. Employment records – The employment records specified in subsection 3.3.
- m. Fitness for duty – Any information collected regarding the worker’s fitness for duty, except for any sensitive or privileged information protected by privacy laws.
- n. Removals and reinstatements – Comprehensive records of all removals from, and reinstatements to, the duties of a designated position, including, in each case, the effective date of removal and the basis for the removal and, when applicable, the effective date of reinstatement and the actions taken to reinstate the worker.

### **Guidance**

Adequacy – Adequate personnel records are accurate, comprehensive, and readily retrievable, and provide auditors and inspectors with reasonable assurance that the documentation preserved as proof of competency is genuine.

## **Subpart B – Physical Infrastructure**

The licensee shall ensure that the reactor facility is equipped or associated with the physical infrastructure necessary to administer the knowledge and performance-based training, certification examinations and requalification tests specified in this regulatory document, including, at a minimum, the facilities specified in subpart B.

### **22. Knowledge-Based Examination and Testing Facilities**

The licensee shall ensure that examiners have access to adequate facilities allowing for the administration of the pertinent knowledge-based certification examinations and requalification tests in compliance with the applicable CNSC requirements referenced in the licence or any accompanying documentation, including the required security measures.

#### **Guidance**

Adequate facility – The knowledge-based examination and testing facilities referenced in this section do not have to be spaces entirely dedicated to examination and testing. Any room may be used that provides an adequate examination and testing environment, including sufficient heating, lighting and ventilation, and is temporarily or permanently arranged in such a manner as to ensure the security of any certification examination or requalification test conducted within.

### **23. Performance-Based Examination and Testing Facilities**

The licensee shall ensure that examiners have access to a full-scope simulator, or an alternate simulator acceptable to the CNSC, that permits the administration of the pertinent performance-based certification examinations and requalification tests in compliance with the applicable CNSC requirements referenced in the licence or any accompanying documentation, including the required security measures. All performance-based certification examinations and requalification tests referenced in this regulatory document shall be administered in simulator facilities or using simulation systems acceptable to the CNSC.

#### **23.1 Simulation capabilities**

The simulator shall be capable of simulating, realistically and in real time, all significant plant manoeuvres and transients that may occur under normal and abnormal operating conditions, including:

- a. reactor start-up and shutdown
- b. major plant upsets and accident conditions
- c. all significant failures of systems and associated subsystems and equipment, and the consequences of such failures
- d. the system and equipment responses to operator actions

For conditions and failures that may vary in magnitude, such as pipe breaks, loss of inventory, loss of flow, loss of pressure and loss of vacuum, the simulator shall have adjustable rates to simulate all possible degrees of severity of a condition or failure that affect system responses or operator actions.

## **Guidance**

Simulation should be autonomous once the simulated scenario has been initiated, requiring minimum intervention from the simulator operator or other personnel, except to control the evolution of the simulated scenario, including the introduction of scripted malfunctions and the potential need for pausing and resuming the simulation.

### **23.2 Physical layout**

To the fullest extent possible, the simulator shall replicate the operating and monitoring systems and equipment available to certified workers in the main control room, as well as the spatial relationships linking these systems and equipment.

In cases where the CNSC has accepted the use of a simulator other than a full-scope simulator, either to complement or as an alternative to the full-scope simulator, the alternate simulator shall meet the requirements specified in this section to the fullest extent possible, within the physical restrictions or functional limitations inherent to the alternate simulator.

### **23.3 Simulator operating room**

The simulator operating room shall be shielded from the main control room replica in such a manner as to prevent the candidate(s) who are being evaluated from seeing or hearing any data being recorded, any input entered in the simulator, or any communication between the simulator operator and the examiner(s) and other examination team members.

## **Guidance**

Adequate facility – The simulator facility should allow for the monitoring of the actions and communications of the candidate(s) from the simulator operating room without interfering with the conduct of any certification examination or requalification test.

### **23.4 Communication systems and equipment**

The simulator shall be equipped with functional replicates of the communication or warning system(s) or equipment used by certified workers in the main control room of the simulated reactor facility, including, as applicable:

- a. telephones or other two-way, internal communication system
- b. a radiation emergency warning system, including any visual or audible alarm
- c. a fire emergency warning system, including any visual or audible alarm
- d. a public address system

### **23.5 Data-recording systems and equipment**

In order to facilitate the conduct and grading of the performance-based certification examinations and requalification tests referenced in this regulatory document, the simulator shall be equipped with adequate data-recording systems and equipment meeting the minimum requirements specified in this subsection.

### **23.5.1 Recording of operator actions**

The simulator shall allow for the recording, retrieval, and printing, in chronological order, along with the time of occurrence, of:

- a. all malfunctions initiated by the simulator operator
- b. all the operator actions performed by the candidate(s) via the simulated control panels and instrumentation

### **23.5.2 Recording of system parameters**

The simulator shall allow for:

- a. the recording, retrieval, and printing of all the system parameter values relevant to:
  - i. the evaluation of the operator actions performed by the candidate(s)
  - ii. the verification of the simulator fidelity
- b. the graphical representation and printing of the variation of said system parameter values in relation to time, based on an adequate sampling frequency, and for a minimum recording period of 2 hours

### **23.5.3 Audiovisual recording system**

The simulator shall be equipped with an audiovisual recording system allowing for:

- a. recording and replaying the actions performed by each candidate being evaluated
- b. recording and replaying all vocal communications, including telephone exchanges, between the candidate(s) being evaluated and the other members of the operating team
- c. the identification of the voice of each candidate being evaluated
- d. the identification of the operating controls, instruments, and references used by the candidate(s) being evaluated
- e. the overlay of the time, real or simulated, on the audiovisual recordings

### **Guidance**

**Purpose** – In context, the primary purpose of the audiovisual recording system is to provide the examination team with added information at the time of grading, in the event that some operator actions and communications are not observed during the evaluation, or some of the observations made by the examiner(s) during the evaluation are contradictory or equivocal.

**Capability** – When cameras are installed to meet the requirements specified in this subsection, some of the cameras should be capable of remote operation, allowing an operator located in the simulator operating room to zoom the frame in and out and pan the viewing angle in all 3 dimensions, thereby allowing the operator, using a sufficient number of cameras, to follow the movements of the candidate(s) throughout the simulator and identify the instrumentation, operational procedures and technical drawings used by the candidate(s).

### **23.5.4 Control of audiovisual data**

The licensee shall establish and document effective policies and procedures to control the access to, and the use of, the audiovisual data collected during the design, development and conduct of certification examinations and requalification tests.

## **Part III – Worker Qualifications**

Part III specifies the prerequisites that reactor facility workers must meet to be eligible for the personnel certification processes described in Part I. These prerequisites apply to 2 distinct groups of certified workers: operations personnel and senior health physicists.

### **Subpart C – Operations Personnel**

#### **24. Operations Personnel Certification**

The requirements specified in this section pertain to workers employed or seeking employment in one of the following generic classes of designated positions:

- a. auxiliary systems operator (ASO)
- b. reactor operator (RO)
- c. shift supervisor

##### **24.1 Core qualifications for operations personnel**

Any worker referred to in this section shall meet, at the time of application for certification, the core qualifications for operations personnel specified in this subsection.

###### **24.1.1 Personnel selection**

The worker must have met, prior to the start of their initial training, the basic prerequisites specified in sub-subsection 14.2.1.

###### **24.1.2 General knowledge**

The worker must have successfully completed general training based on a training system and must consequently possess the fundamental knowledge, including the applied sciences and engineering principles, relevant to the design and operation of the reactor(s) and associated systems, subsystems, and equipment installed in the reactor facility identified in the licence.

###### **24.1.3 Plant familiarization**

The worker must have successfully completed, prior to the start of the station-specific training specified in sub-subsection 24.1.4, plant familiarization training based on a training system and must consequently possess, at a minimum, a basic understanding of:

- a. the physical layout of the reactor facility identified in the licence, including the location and size of the major systems, subsystems, and equipment
- b. the management system and organizational infrastructure necessary to operate said reactor facility under normal, abnormal, and emergency conditions, including the mandate, roles and responsibilities of the key personnel and groups of personnel

###### **24.1.4 Station-specific knowledge**

The worker must have successfully completed station-specific training based on a training system and must consequently possess the detailed knowledge necessary to safely and competently

operate, under normal, abnormal, and emergency conditions, the reactor(s) and associated systems, subsystems, and equipment installed in the reactor facility identified in the licence.

### **Guidance**

Clarification – The knowledge referenced in this sub-subsection is the detailed station-specific knowledge that, for ASO candidates, is required of a certified ASO, or, for RO and shift supervisor candidates, is required of a certified RO.

#### **24.1.5 Nuclear emergency management**

The worker must possess adequate knowledge of nuclear emergency response and the management of beyond-design-basis accidents, including the roles and responsibilities of certified workers regarding emergency operating procedures and severe accident management.

#### **24.1.6 On-the-job training**

The worker must have successfully completed on-the-job training (OJT) based on a training system covering, at a minimum, the relevant knowledge and skills (K&S) and safety-related attributes acquired or reinforced most effectively through OJT.

#### **24.1.7 Simulator-based training**

The worker must have successfully completed simulator-based training based on a training system covering, at a minimum, the relevant K&S and safety-related attributes acquired or reinforced most effectively through simulated scenarios.

#### **24.1.8 Knowledge-based general certification examination**

The worker must have successfully completed a knowledge-based examination providing sufficient evidence that the worker possesses the general knowledge necessary to perform the duties of the pertinent designated position safely and competently.

#### **24.1.9 Knowledge-based station-specific certification examination**

The worker must have successfully completed a knowledge-based examination providing sufficient evidence that the worker possesses the station-specific knowledge necessary to perform the duties of the pertinent designated position safely and competently.

#### **24.1.10 Performance-based certification examination**

The worker must have successfully completed, within 2 years of the application for certification, a performance-based certification examination conducted in a full-scope simulator or approved alternative providing sufficient evidence that the worker can perform the duties of the pertinent designated position safely and competently.

#### **24.1.11 Work under supervision**

The worker must have successfully performed a minimum number of hours of work under supervision (WUS) acceptable to the CNSC, in the pertinent designated position and under the supervision of a qualified worker certified to work in the pertinent designated position.

## **Guidance**

Compliance scheme – Appendix B specifies the minimum number of WUS hours acceptable to the CNSC for the pertinent reactor facilities in service at the time of publication of the current version of this regulatory document.

### **24.1.12 Management interview**

The worker must have successfully undergone a formal management interview conducted by a manager authorized by the licensee to represent the licensee, who thereby verified that the worker is capable, in the opinion of the licensee, of performing the duties of the pertinent designated position safely and competently.

The management interview shall be conducted after all the other requirements specified in subsection 24.1 have been met.

## **24.2 Supplementary qualifications for shift supervisors**

In addition to the core qualifications for operations personnel specified in subsection 24.1, a worker seeking certification for employment as shift supervisor shall meet, at the time of application for certification, the supplementary requirements specified in this subsection.

### **24.2.1 Supplementary personnel selection criteria**

The worker must have met the supplementary prerequisites specified in sub-subsection 14.2.2.

### **24.2.2 Supplementary station-specific knowledge**

The worker must have successfully completed supplementary station-specific training based on a training system and must consequently possess the supplementary knowledge specifically required of shift supervisors concerning the design and operation, under normal, abnormal, and emergency conditions, of the reactor(s) and associated systems, subsystems and equipment installed in the reactor facility identified in the licence.

## **Guidance**

Clarification – The supplementary station-specific training for shift supervisors covers any supplementary station-specific knowledge that is required of a certified shift supervisor, in addition to the baseline station-specific knowledge required of a certified RO.

### **24.2.3 Supplementary knowledge-based station-specific certification examination**

The worker must have successfully completed a knowledge-based examination providing sufficient evidence that the worker possesses the supplementary station-specific knowledge specifically required of shift supervisors to perform their duties safely and competently.

## **24.3 Requalification of operations personnel**

Any worker referred to in this section seeking the renewal of their certification shall meet, at the time of application for certification renewal, the requirements specified in this subsection.



### **24.3.1 Continuing training**

The certified worker must have successfully completed, within the current certification period, suitable continuing training meeting the requirements specified in subsection 15.2.

### **24.3.2 Knowledge-based requalification testing**

The certified worker must have successfully completed, within 2 years of the application for certification renewal, a knowledge-based requalification test or series of tests providing sufficient evidence that the worker has retained the knowledge necessary to perform the duties of the pertinent designated position safely and competently.

### **24.3.3 Performance-based requalification testing**

The certified worker must have successfully completed, within 2 years of the application for certification renewal, and in a lead role, a performance-based requalification test or series of tests conducted in a full-scope simulator or approved alternative providing sufficient evidence that the worker can perform the duties of the pertinent designated position safely and competently.

### **24.3.4 Minimum employment of operations personnel**

The certified worker must have been sufficiently employed in the pertinent designated position to maintain an adequate competency level.

## **Guidance**

Minimum employment – The CNSC does not prescribe a specific number of hours in relation to the minimum employment referred to in this sub-subsection. Notwithstanding, the licensee should ensure that, to the fullest extent possible, every certified shift worker is sufficiently exposed to the duties of the designated position by standing solo or supervised shifts on a regular or periodic basis, throughout the certification period.

Important note – The licensee should note that the pertinent regulations do not allow the CNSC or a DO to renew a certification unless the certified worker has “safely and competently performed the duties” of the pertinent designated position.

## **24.4 Qualifying for recertification within 5 years of a certificate expiry**

Any worker referred to in this section seeking a recertification within 5 years of the expiry of a prior certification for the same position shall meet, at the time of application for recertification, the requirements specified in this subsection.

### **24.4.1 Tailored training**

The worker must have successfully completed tailored training comprising knowledge and performance-based refresher and update training based on a documented individual training needs analysis (ITNA) and a documented individual training plan (ITP).

At a minimum, this tailored training shall cover any scheduled refresher training and update training, including any simulator-based training, that the worker missed during the interim period between the certificate expiry and the application for recertification.

#### **24.4.2 Knowledge-based requalification testing**

The certified worker must have successfully completed, within 2 years of the application for recertification, a knowledge-based requalification test or series of tests providing sufficient evidence that the worker has retained the knowledge necessary to perform the duties of the pertinent designated position safely and competently.

#### **24.4.3 Performance-based requalification testing**

The certified worker must have successfully completed, within 2 years of the application for recertification, and in a lead role, a comprehensive performance-based requalification test conducted in a full-scope simulator or approved alternative providing sufficient evidence that the worker can perform the duties of the pertinent designated position safely and competently.

#### **24.4.4 Work under supervision**

The worker must have successfully performed the duties of the pertinent designated position under the supervision of a qualified worker certified for employment in the same designated position, and for a number of complete shifts deemed sufficient by the licensee to confirm that the worker can perform the duties of the pertinent designated position safely and competently.

#### **24.4.5 Management interview**

The worker must have successfully undergone a formal management interview conducted by a manager authorized by the licensee to represent the licensee, who thereby verified that the worker is capable, in the opinion of the licensee, of performing the duties of the pertinent designated position safely and competently.

The management interview shall be conducted after all other requirements previously specified in subsection 24.4 have been met.

### **24.5 Qualifying for recertification following decertification or certificate expiry after 5 years**

Any worker referred to in this section seeking a recertification following decertification by the CNSC, or following the expiry of a certificate that occurred more than 5 years before the date of application for recertification, shall meet, at the time of application for recertification, the requirements specified in this subsection.

#### **24.5.1 Decertification basis remediation**

When the worker is seeking recertification following decertification, any deficiency identified as part of the basis provided by the CNSC for the decertification of the worker shall no longer exist or shall have been remedied by the licensee to the satisfaction of the CNSC.

#### **Guidance**

Depending on the basis for the decertification, remediation may involve any means or method used to rectify or remedy the cause of the decertification, including, but not limited to, administrative measures, remedial training, rehabilitation, or therapy.

### **24.5.2 Tailored training**

The worker must have successfully completed tailored training comprising knowledge and performance-based refresher and update training based on a documented individual training needs analysis (ITNA) and a documented individual training plan (ITP).

At a minimum, the tailored training referenced in this subsection shall cover any scheduled refresher training and update training, including any simulator-based training, that the worker missed during the interim period between the decertification or certificate expiry and the application for recertification.

### **24.5.3 Knowledge-based station-specific certification examination**

The worker must have successfully completed, within 2 years of the application for recertification, a station-specific knowledge examination providing sufficient evidence that the worker possesses the station-specific knowledge necessary to perform the duties of the pertinent designated position safely and competently.

When the worker is seeking certification as a shift supervisor, the licensee shall administer both baseline and supplementary station-specific examinations.

### **24.5.4 Performance-based certification examination**

The worker must have successfully completed, within 2 years of the application for recertification, a performance-based certification examination conducted in a full-scope simulator or approved alternative providing sufficient evidence that the worker can perform the duties of the pertinent designated position safely and competently.

### **24.5.5 Work under supervision**

The worker must have successfully performed the duties of the pertinent designated position under the supervision of a qualified worker certified for employment in the same designated position, and for a number of complete shifts deemed sufficient by the licensee to confirm that the worker can perform the duties of the pertinent designated position safely and competently.

### **24.5.6 Management interview**

The worker must have successfully undergone a formal management interview conducted by a manager authorized by the licensee to represent the licensee, who thereby verified that the worker is capable, in the opinion of the licensee, of performing the duties of the pertinent designated position safely and competently.

The management interview shall be conducted after all other requirements specified in subsection 24.5 have been met.

**Guidance**

Schedule – The management interview referenced throughout section 24 is the last activity conducted prior to any application for certification or recertification, as it is intended as the final worker competency evaluation.

Effective dates – The 2-year validity period applicable to the knowledge and performance-based certification examination and requalification test results referenced throughout section 24 starts on the date the examination or test is conducted, not the date on which the grading is finalized.

## **Subpart D – Senior Health Physicists**

### **25. Senior Health Physicist Certification**

The requirements specified in this section pertain to workers employed or seeking employment as senior health physicist (SHP).

#### **25.1 Qualifications for senior health physicists**

A worker seeking certification for employment as an SHP shall meet, at the time of application for certification, the requirements specified in this subsection.

##### **25.1.1 Personnel selection**

The worker must have met, prior to the start of their initial training, the basic and supplementary prerequisites specified in sub-subsections 14.2.1 and 14.2.2 respectively.

##### **25.1.2 Prior education**

The worker shall:

- a. hold a degree in health physics granted by a recognized university, or
- b. hold a baccalaureate in engineering or science granted by a recognized university, and have successfully completed a suitable series of courses offered by a recognized educational institution or learning provider covering current radiation protection principles and methods

##### **25.1.3 Prior work experience**

The worker shall possess, at a minimum, 4 years of relevant experience, including 2 years as a health physicist or an equivalent position at a reactor facility.

##### **25.1.4 Initial training**

The worker must have successfully completed initial training based on a training system covering the general and station-specific knowledge, skills and safety-related attributes required to safely and competently perform the duties of an SHP employed at the reactor facility identified in the licence.

##### **25.1.5 Radiation protection expertise**

The worker must, in consequence of the education, work experience, and initial training previously specified in subsection 25.1, possess knowledge, to an extent commensurate with the duties of an SHP, of radiation theory, including radiation hazards, and of radiation protection theory and practices, including the radiation protection procedures relevant to the operation of the reactor facility identified in the licence under normal, abnormal, and emergency conditions.

##### **25.1.6 Management interview**

The worker must have successfully undergone a formal management interview conducted by a manager authorized by the licensee to represent the licensee, who thereby verified that the worker

is capable, in the opinion of the licensee, of performing the duties of an SHP safely and competently.

The management interview shall be conducted after the worker has successfully completed the initial training referenced in sub-subsection 25.1.4, and before the certification examination specified in sub-subsection 25.1.7.

#### **25.1.7 Certification examination**

The worker must have successfully completed a knowledge-based examination administered by CNSC staff.

#### **Guidance**

Knowledge areas – Appendix C provides a summary of the key knowledge areas and topics sampled by CNSC staff during the SHP certification examinations and requalification tests.

### **25.2 Requalification of senior health physicists**

A worker seeking the renewal of a certification for employment as an SHP shall meet, at the time of application for certification renewal, the requirements specified in this subsection.

#### **25.2.1 Continuing training**

The worker must have successfully completed refresher and update training based on a training system covering the knowledge, skills and safety-related attributes required to safely and competently perform the duties of an SHP employed at the reactor facility identified in the licence.

#### **25.2.2 Management interview**

The worker must have successfully undergone a formal management interview conducted by a manager authorized by the licensee to represent the licensee, who thereby verified that the worker is capable, in the opinion of the licensee, of performing the duties of an SHP safely and competently.

The management interview shall be conducted after the worker has successfully completed the continuing training referenced in sub-subsection 25.2.1, and before the requalification test specified in sub-subsection 25.2.3.

#### **25.2.3 Requalification testing**

The worker must have successfully completed a knowledge-based requalification test administered by CNSC staff.

## **Guidance**

Knowledge areas – Appendix C provides a summary of the key knowledge areas and topics sampled by CNSC staff during the SHP certification examinations and requalification tests.

### **25.3 Qualifying for recertification following decertification or certificate expiry**

A worker seeking certification for employment as an SHP following decertification by the CNSC, or following the expiry of the certificate, shall meet, at the time of application for recertification, the requirements specified in this subsection.

#### **25.3.1 Decertification basis remediation**

When the worker is seeking certification following decertification, any deficiency identified as part of the basis provided by the CNSC for the decertification of the worker shall no longer exist or shall have been remedied by the licensee to the satisfaction of the CNSC.

## **Guidance**

Depending on the basis for the decertification, remediation may involve any means or method used to rectify or remedy the cause of the decertification, including, but not limited to, administrative measures, remedial training, rehabilitation, or therapy.

#### **25.3.2 Tailored training**

The worker must have successfully completed tailored training, comprising knowledge and performance-based refresher and update training, based on a documented individual training needs analysis (ITNA) and a documented individual training plan (ITP).

At a minimum, the tailored training referenced in this subsection shall cover any scheduled knowledge refresher and knowledge update training that the worker missed during the interim period between decertification or the certificate expiry and the application for certification.

#### **25.3.3 Management interview**

The worker must have successfully undergone a formal management interview conducted by a manager authorized by the licensee to represent the licensee, who thereby verified that the worker is capable, in the opinion of the licensee, of performing the duties of an SHP safely and competently.

The management interview shall be conducted after the worker has successfully completed the tailored training referenced in sub-subsection 25.3.2, and before the certification examination specified in sub-subsection 25.3.4.

#### **25.3.4 Certification examination**

The worker must have successfully completed a knowledge-based examination administered by CNSC staff.

## Appendix A : Station-Specific Designated Positions

This appendix specifies which station-specific position(s) correspond(s) to each generic class of designated position referenced in this regulatory document for the pertinent reactor facility in operation at the time of publication of the current version of this regulatory document.

### A.1 Station-Specific Positions Requiring an Auxiliary Systems Operator (ASO) Certification

CANDU reactor facilities					
Facility	Bruce	Darlington	Gentilly-2	Pickering	Point Lepreau
<b>ASO position</b>	Unit 0 Control Room Operator	Unit 0 Control Room Operator	None	None	None

### A.2 Station-Specific Positions Requiring a Reactor Operator (RO) Certification

CANDU reactor facilities					
Facility	Bruce	Darlington	Gentilly-2	Pickering	Point Lepreau
<b>RO position</b>	Authorized Nuclear Operator	Authorized Nuclear Operator	None	Authorized Nuclear Operator	Control Room Operator

### A.3 Station-Specific Positions Requiring a Shift Supervisor Certification

CANDU reactor facilities					
Facility	Bruce	Darlington	Gentilly-2	Pickering	Point Lepreau
<b>Shift Supervisor position</b>	Control Room Shift Supervisor	Control Room Shift Supervisor	None	Control Room Shift Supervisor	Shift Supervisor
<b>Senior Shift Supervisor position</b>	Shift Manager	Shift Manager	None	Shift Manager	None

### A.4 Station-Specific Positions Requiring a Senior Health Physicist (SHP) Certification

CANDU reactor facilities					
Facility	Bruce	Darlington	Gentilly-2	Pickering	Point Lepreau
<b>SHP position</b>	Authorized Health Physicist	Responsible Health Physicist	Responsible technique de radioprotection	Responsible Health Physicist	Senior Health Physicist



## Appendix B : Compliance Schemes Acceptable to the CNSC

This appendix specifies schemes acceptable to the CNSC that the licensee must implement at the specified reactor facilities to be compliant with the referenced requirements for the pertinent reactor facilities in service at the time of publication of the current version of this regulatory document.

### Compliance scheme for CANDU reactor facilities

Reference	Description	Requirement(s)
Sub-subsection 24.1.11	Minimum number of hours of work under supervision (WUS) required for the certification of operations personnel.	The worker shall have successfully performed 360 hours of WUS in the pertinent designated position, under the supervision of a qualified worker certified to work in said designated position.
Sub-subsection 14.4.1	Minimum experience as shift supervisor prior to advancement to a senior shift supervisor position.	The worker shall have safely and competently performed the duties of a shift supervisor at the reactor facility identified in the licence for a minimum of 80 complete shifts amounting to a minimum of 960 hours of shiftwork prior to being selected for advancement to the senior shift supervisor position.
Sub-subsection 20.2.1	Minimum shift requirements for operations personnel.	<p>Any worker certified for employment as ASO shall perform the duties of an ASO for a minimum of 4 complete shifts per calendar quarter amounting to a minimum of 48 hours of shiftwork per calendar quarter.</p> <p>Any worker certified for employment as RO shall perform the duties of an RO for a minimum of 4 complete shifts per calendar quarter amounting to a minimum of 48 hours of shiftwork per calendar quarter.</p> <p>Any worker certified for employment as shift supervisor, but not qualified as senior shift supervisor, shall perform the duties of a shift supervisor for a minimum of 4 complete shifts per calendar quarter amounting to a minimum of 48 hours of shiftwork per calendar quarter.</p> <p>Any worker certified for employment as shift supervisor who is duly qualified as senior shift supervisor shall perform the duties of a shift supervisor or senior shift supervisor for a minimum of 4 complete shifts per calendar quarter amounting to a minimum of 48 hours of shiftwork per calendar quarter.</p>

## Appendix C : Senior Health Physicist Examination and Testing Topics

The certification examinations and requalification tests administered by CNSC staff to workers seeking certification or the renewal of a certification for employment as senior health physicist cover topics divided into 3 parts, each covering a specific knowledge area, as exemplified in this appendix.

### C.1 Regulations and Reactor Operating Licence

The relevant topics include, but are not limited to:

- a. the relevant provisions of the NSCA
- b. the relevant regulations made pursuant to the NSCA, namely the:
  - i. *General Nuclear Safety and Control Regulations*
  - ii. *Radiation Protection Regulations*
  - iii. *Class I Nuclear Facilities Regulations*
  - iv. *Nuclear Substances and Radiation Devices Regulations*
  - v. *Packaging and Transport of Nuclear Substances Regulations*
- c. the reactor facility licence and the documentation referenced in the licence

### C.2 Radiation Protection

The relevant topics include, but are not limited to:

- a. safety culture
- b. reactor facility design, operation, and maintenance
- c. the relevant licensee and station-specific policies, standards, and procedures
- d. the radiation protection principles, methods and practices related to the operation of the reactor facility identified in licence
- e. the relevant Canadian, international and industry standards and conventions

### C.3 Roles and Responsibilities

The relevant topics include, but are not limited to:

- a. the responsibilities and authority of the senior health physicist
- b. the responsibilities and authority of the personnel who interact with the senior health physicist

## Appendix D : Station-Specific Training Samples

This appendix contains examples of station-specific knowledge areas covered by station-specific training programs initially implemented at CANDU reactor facilities and found acceptable by the CNSC. These examples are included as additional guidance to newly licensed reactor facility operators trying to establish suitable training programs. Notwithstanding this added guidance, a suitable training program is based on a reactor facility training system found acceptable by the CNSC.

### D.1 Station-Specific Training for Reactor Operators

The relevant training areas may include:

- a. design and operation of reactor facility systems
- b. integrated operation of reactor facility systems, including, where applicable, interfaces between the systems of a reactor unit and those of other reactor units and common and auxiliary systems
- c. expected response of reactor facility systems and units to abnormal and accident conditions
- d. technical bases for emergency operating procedures
- e. diagnosis of equipment failures and assessment of abnormal plant conditions
- f. phenomena that may significantly affect reactor core reactivity and neutron flux shape
- g. reactor fuelling, fuelling limitations, fuel handling and storage, and irradiated fuel cooling
- h. configuration of systems and equipment isolation required for maintenance activities
- i. safety culture
- j. principles of nuclear safety and their application
- k. the operating licence and the documents referenced in the operating licence
- l. situations that may result in the violation of the conditions of the operating licence and the operating policies and principles (OPP)
- m. administrative procedures related to reactor facility operation and maintenance
- n. the responsibilities and authority of a reactor operator, and of the other members of the reactor facility personnel who interface with the reactor operator

### D.2 Supplementary Station-Specific Training for Control Room Shift Supervisors

The relevant training areas may include, in addition to those relevant to station-specific training for reactor operators:

- a. reactor physics, principles of reactor operation and fuelling strategies
- b. phenomena that may significantly affect reactor core reactivity and neutron flux shape
- c. properties of irradiated fuel, principles of fuel cooling and physics of fuel failures
- d. operating constraints and limits associated with reactor fuelling and irradiated fuel cooling
- e. reactor safety, heat transfer mechanisms and fluid mechanics
- f. primary and back-up heat sinks
- g. conventional and radiation hazards to reactor facility personnel and to the public, including hazards from postulated accident conditions
- h. handling of conventional and radiation emergencies
- i. handling of an intruder or of a terrorist attack
- j. design requirements of safety-related equipment and systems
- k. design features and limitations of reactor facility equipment and systems
- l. chemical control of systems
- m. diagnosis of equipment failures and assessment of abnormal plant conditions
- n. expected response of reactor facility systems and units to abnormal and accident conditions

- o. operating strategies
- p. reactor facility safety analyses, including major assumptions in the reactor facility accident analyses and technical bases for emergency operating procedures
- q. configuration of systems and equipment isolation required for maintenance activities
- r. design and operation of reactor facility systems for which the reactor operators do not have direct operational control, including common systems and fuel handling systems
- s. the licensee's policies, standards, and procedures
- t. the operating licence and the documents referenced in the operating licence
- u. situations that may result in the violation of the conditions of the operating licence and the OPP
- v. requirements pertaining to reactor facility operation in federal and provincial acts and regulations, and any relevant standards and codes
- w. responsibilities and authority of the shift supervisor(s), of the senior shift supervisor, and of other members of the reactor facility personnel who report to, or interface with, the shift supervisor(s) and the senior shift supervisor
- x. qualification requirements of the members of the reactor facility personnel who report to the shift supervisor(s) and the senior shift supervisor

### **D.3 Station-Specific Training for Senior Health Physicists**

The relevant training areas may include:

- a. the relevant provisions of the NSCA
- b. the regulations made pursuant to the NSCA, including the:
  - i. *General Nuclear Safety and Control Regulations*
  - ii. *Radiation Protection Regulations*
  - iii. *Class I Nuclear Facilities Regulations*
  - iv. *Nuclear Substances and Radiation Devices Regulations*
  - v. *Packaging and Transport of Nuclear Substances Regulations*
- c. safety culture
- d. the responsibilities and authority of the senior health physicist
- e. the responsibilities and authority of the members of the reactor facility personnel who interact with the senior health physicist
- f. the responsibilities and authority of the members of external organizations who interact with the senior health physicist, notably in the nuclear emergency management context
- g. the operating licence and the documents referenced in the operating licence
- h. the licensee and reactor facility policies, standards, and procedures
- i. reactor facility design, operation, and maintenance

## Glossary

For definitions of terms used in this document, see [REGDOC-3.6, \*Glossary of CNSC Terminology\*](#), which includes terms and definitions used in the [Nuclear Safety and Control Act](#) and the regulations made under it, and in CNSC regulatory documents and other publications. REGDOC-3.6 is provided for reference and information.

The following definitions are either new or are modified versions of terms already defined current definition for that term. Following public consultation, the final terms and definitions will be submitted for inclusion in the next version of REGDOC-3.6, *Glossary of CNSC Terminology*.

**(new)**

**candidate**

In the context of an application for certification, including a recertification or the renewal of a certification, the worker seeking certification and whose candidature is assessed by the CNSC; in the context of a certification examination or requalification test, the worker whose knowledge or performance is evaluated.

**(new)**

**certificate**

A printed proof of certification by the CNSC issued to each certified worker and signed by a Commission member or a designated officer acting on behalf of the Commission.

**(modified)**

**certification**

Attestation from the Commission, or from a designated officer authorized by the Commission, certifying that a person is qualified to carry out licensed activities on behalf of the licensee, including the duties of a designated position.

**(new)**

**certified shift worker**

A certified worker who performs shiftwork, normally in the main control room, as an integral part of the duties of the designated position, as opposed to certified workers whose duties are generally performed during normal working hours.

**(new)**

**certifying body**

The legal entity or association empowered or authorized to certify workers and to stipulate requirements for the certification of workers in relation to a given occupation or job; for the purpose of this regulatory document, the CNSC is the certifying body.

**(new)**

**complete shift**

A shift worked in a designated position as a member of the minimum staff complement consisting of a minimum of 4 consecutive hours preceded by a formal turnover of the responsibilities for the shift with an outgoing counterpart and concluded by an equal turnover with an incoming counterpart.

**(new)**

**designated position**

A position of direct and immediate impact on nuclear safety that has been designated in a licence in relation to a personnel certification scheme or an alternate authorization process, and which must therefore be staffed with workers duly certified or authorized by the CNSC.

**(modified)**

**full-scope simulator**

A simulator that can perform detailed modelling of the response, under normal, abnormal, and design-basis accident conditions, of the reactor or group of reactors and associated systems and subsystems installed in a reactor facility. A full-scope simulator is equipped with a replica of the main control room instrumentation and allows users to monitor and operate in real time the simulated systems and subsystems in an environment duplicating the physical and functional characteristics of the instrumentation normally available to operations personnel.

**(new)**

**individual training needs analysis**

A systematic process whereby the training needs of a single worker are determined by identifying any gap in the knowledge, skills, and safety-related attributes required of the worker to safely and competently perform their duties.

**(new)**

**individual training plan**

The learning strategy, including learning objectives and learner evaluation(s), resulting from an individual training needs analysis, and serving as basis for the training of an individual learner, as opposed to a group of learners.

**(new)**

**knowledge-based (learner evaluation, certification examination, requalification test)**

Said of an evaluation designed to measure the retention of job-related knowledge by means of an oral or written question-and-answer methodology.

**(modified)**

**learner evaluation (see also trainee evaluation)**

The assessment of progress made by participants during an instructional program (formative evaluation) and of their achievement at the end of the program (summative evaluation).

**(new)**

**performance-based (learner evaluation, certification examination, requalification test)**

Said of an evaluation of job-related knowledge, skills and safety-related attributes based on the direct observation of the performance of a job-related task or series of tasks.

**(new)**

**senior shift supervisor**

A certified shift supervisor who exercises authority over any number of shift supervisors as an integral part of the management system and minimum staff complement; for example, shift managers employed at multi-unit CANDU reactor facilities are considered senior shift supervisors.

**(new)**

**simulator fidelity**

The degree to which a simulator replicates the physical aspect and behaviour of the simulated object.

**(new)**

**tailored training**

Training that is tailored to meet the specific training needs of an individual learner based on an individual training needs analysis (ITNA) and an individual training plan (ITP), as opposed to an established training program.

**(new)**

**worker competency**

Inferred ability of a worker or workforce to safely and competently perform the duties of their employment based on demonstrated knowledge, skills, and safety-related attributes.

## Abbreviations

Abbreviation	Meaning
ASO	auxiliary systems operator
CANDU	CANada Deuterium Uranium
CNSC	Canadian Nuclear Safety Commission
DO	designated officer
ITP	individual training plan
K&S	knowledge and skills
MCQ	multiple choice question
MEQ	modified essay question
MSC	minimum staff complement
NSCA	Nuclear Safety and Control Act
OJT	on-the-job training
OPP	operating policies and principles
RO	reactor operator
SHP	senior health physicist
ITNA	individual training needs analysis
WUS	work under supervision



### **Additional Information**

This document must be read in conjunction with complementary CNSC regulatory documents in the human performance management series and other safety and control areas. The documents listed in this section are the complementary regulatory documents relevant to the current version of REGDOC-2.2.3, Volume III.

1. REGDOC-2.1.1, *Management System*
2. REGDOC-2.1.2, *Safety Culture*
3. REGDOC-2.2.1, *Human Factors*
4. REGDOC-2.2.2, *Personnel Training*
5. REGDOC-2.2.4, *Fitness for Duty: Managing Worker Fatigue*
6. REGDOC-2.2.4, *Fitness for Duty, Volume II: Managing Alcohol and Drug Use*
7. REGDOC-2.2.5, *Minimum Staff Complement*
8. REGDOC-2.3.2, *Accident Management*
9. REGDOC-2.10.1, *Nuclear Emergency Preparedness and Response*
10. REGDOC-3.1.1, *Reporting Requirements for Nuclear Power Plants*

## CNSC Regulatory Document Series

Facilities and activities within the nuclear sector in Canada are regulated by the CNSC. In addition to the *Nuclear Safety and Control Act* and associated regulations, these facilities and activities may also be required to comply with other regulatory instruments such as regulatory documents or standards.

CNSC regulatory documents are classified under the following categories and series:

### 1.0 Regulated facilities and activities

- Series
- 1.1 Reactor facilities
  - 1.2 Class IB facilities
  - 1.3 Uranium mines and mills
  - 1.4 Class II facilities
  - 1.5 Certification of prescribed equipment
  - 1.6 Nuclear substances and radiation devices

### 2.0 Safety and control areas

- Series
- 2.1 Management system
  - 2.2 Human performance management
  - 2.3 Operating performance
  - 2.4 Safety analysis
  - 2.5 Physical design
  - 2.6 Fitness for service
  - 2.7 Radiation protection
  - 2.8 Conventional health and safety
  - 2.9 Environmental protection
  - 2.10 Emergency management and fire protection
  - 2.11 Waste management
  - 2.12 Security
  - 2.13 Safeguards and non-proliferation
  - 2.14 Packaging and transport

### 3.0 Other regulatory areas

- Series
- 3.1 Reporting requirements
  - 3.2 Public and Indigenous engagement
  - 3.3 Financial guarantees
  - 3.4 Commission proceedings
  - 3.5 CNSC processes and practices
  - 3.6 Glossary of CNSC terminology

**Note:** The regulatory document series may be adjusted periodically by the CNSC. Each regulatory document series listed above may contain multiple regulatory documents. Visit the CNSC's website for the latest [list of regulatory documents](#).