



Human Performance Management **Fitness for Duty, Volume II: Managing Alcohol and Drug Use**

REGDOC-2.2.4
Version 3

January 2021



Fitness for Duty, Volume II: Managing Alcohol and Drug Use
Regulatory document REGDOC-2.2.4, Version 3

© Canadian Nuclear Safety Commission (CNSC) 2021
Cat. No. CC172-166/2-2021E-PDF
ISBN 978-0-660-36515-2

Extracts from this document may be reproduced for individual use without permission provided the source is fully acknowledged. However, reproduction in whole or in part for purposes of resale or redistribution requires prior written permission from the CNSC.

Également publié en français sous le titre : Gestion de la performance humaine : Aptitude au travail, tome 2 : Gérer la consommation d'alcool et de drogues, version 3

Document availability

This document can be viewed on the [CNSC website](#). To request a copy of the document in English or French, please contact:

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

Tel.: 613-995-5894 or 1-800-668-5284 (in Canada only)

Fax: 613-995-5086

Email: cnscccsn@canada.ca

Website: nuclearsafety.gc.ca

Facebook: facebook.com/CanadianNuclearSafetyCommission

YouTube: youtube.com/cnscccsn

Twitter: [@CNSC_CCSN](https://twitter.com/CNSC_CCSN)

LinkedIn: linkedin.com/company/cnscccsn

Publishing history

November 2017	Version 1.0
January 2018	Version 2.0
January 2021	Version 3.0

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 personnel certification. 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-2.2.4, *Fitness for Duty, Volume II: Managing Alcohol and Drug Use*, sets out requirements and guidance for managing fitness for duty of workers in relation to alcohol and drug use and abuse at all high-security sites, as defined in the *Nuclear Security Regulations*.

REGDOC-2.2.4, *Fitness for Duty, Volume II* is intended to form part of the licensing basis for a regulated facility or activity within the scope of the document. It is intended for inclusion in licences as either part of the conditions and safety and control measures in a licence, or as part of the safety and control measures to be described in a licence application and the documents needed to support that application.

The CNSC's regulatory framework includes CNSC regulatory documents as well as national and international standards. Specifically, the Canadian Standards Association (CSA Group) N-series standards provide an interlinked set of regulatory requirements for the management of nuclear facilities and activities. The CSA N286 standard provides an overall management framework and direction to develop and implement sound management practices and controls for the licensing basis. This regulatory document does not duplicate the generic requirements of CSA N286. However, it provides more specific direction for those requirements.

For proposed new regulated facilities and activities, this document will be used to assess licence applications.

Guidance contained in this document exists to inform the applicant, to elaborate further on requirements or to provide direction to licensees and applicants on how to meet requirements. It also provides more information about how CNSC staff evaluate specific problems or data during their review of licence applications. Licensees are expected to review and consider guidance; should they choose not to follow it, they should explain how their chosen alternate approach meets regulatory requirements.

For existing facilities: The requirements contained in this document do not apply unless they have been included, in whole or in part, in the licence or licensing basis.

A graded approach, commensurate with risk, may be defined and used when applying the requirements and guidance contained in this regulatory document. The use of a graded approach is not a relaxation of requirements. With a graded approach, the application of requirements is commensurate with the risks and particular characteristics of the facility or activity.

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

Important note: Where referenced in a licence either directly or indirectly (such as through licensee-referenced documents), this document is part of the licensing basis for a regulated facility or activity.

The licensing basis sets the boundary conditions for acceptable performance at a regulated facility or activity, and establishes the basis for the CNSC's compliance program for that regulated facility or activity.

Where this document is part of the licensing basis, 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.

Table of Contents

1.	Introduction.....	1
1.1	Purpose.....	1
1.2	Scope.....	1
1.3	Relevant legislation.....	1
1.4	Relevant international standards and guidelines.....	2
2.	Background	2
3.	Managing Alcohol and Drug Use.....	3
3.1	Policy statements	3
3.2	Fitness-for-duty program	3
3.3	Authorities, accountabilities and responsibilities.....	4
3.4	General fitness-for-duty process	4
3.5	Access to assistance	5
3.6	Behavioural observation	5
3.6.1	Peer observation and reporting	5
3.6.2	Supervisory awareness program	5
3.7	Assessment and continual improvement.....	6
3.8	Training, education, and awareness	6
4.	Positions Subject to Alcohol and Drug Testing	7
4.1	Safety-critical and safety-sensitive positions	7
5.	Alcohol and Drug-Testing Requirements by Circumstance and Workgroup.....	7
5.1	Pre-placement alcohol and drug testing	7
5.2	Reasonable grounds alcohol and drug testing.....	8
5.3	Post-incident alcohol and drug testing	8
5.4	Follow-up and return-to-duty alcohol and drug testing	9
5.5	Random alcohol and drug testing	9
6.	Alcohol- and Drug-Testing Processes.....	10
6.1	Breath alcohol-testing process	10
6.2	Drug-testing process	11
6.2.1	Point of collection testing	12
6.3	Process for positive alcohol and drug tests	13
6.4	Substance abuse evaluation process.....	13
6.5	Investigative and alcohol and drug screening tools	14
6.6	Records	14

Appendix A: Alcohol and Drug Tests by Workgroup and Circumstance 15

Appendix B: Alcohol- and Drug-Testing Thresholds 16

 B.1 Blood alcohol concentration ranges and associated actions 16

 B.2 Urine immunoassay screening 16

 B.3 Urine GC-MS and LC-MS/MS confirmation 17

 B.4 Urine: Recommended dilution protocol cut-off concentrations..... 17

 B.5 Oral fluid immunoassay screening..... 18

 B.6 Oral fluid GC-MS and LC-MS/MS confirmation..... 18

Abbreviations 19

Glossary 20

References..... 21

Additional Information 22

Fitness for Duty, Volume II: Managing Alcohol and Drug Use

1. Introduction

1.1 Purpose

This regulatory document establishes requirements and guidance for managing worker fitness for duty with respect to alcohol and drug use.

1.2 Scope

This regulatory document is intended for high-security sites as defined in the [Nuclear Security Regulations](#). The requirements and guidance in this document apply to workers holding safety-critical or safety-sensitive positions as described in section 4.1.

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:

- Subparagraph 9(a)(i) of the NSCA states that one of the objects of the Commission is “to regulate the development, production and use of nuclear energy and the production, possession and use of nuclear substances, prescribed equipment and prescribed information in order to prevent unreasonable risk, to the environment and to the health and safety of persons, associated with that development, production, possession or use”.
- Paragraph 12(1)(a) of the [General Nuclear Safety and Control Regulations](#) requires that every licensee shall “ensure the presence of a sufficient number of qualified workers to carry on the licensed activity safely and in accordance with the Act, the regulations made under the Act and the licence”.
- Paragraph 12(1)(b) of the [General Nuclear Safety and Control Regulations](#) requires that every licensee shall “train the workers to carry on the licensed activity in accordance with the Act, the regulations made under the Act and the licence”.
- Paragraph 17(b) of the [General Nuclear Safety and Control Regulations](#) requires that every worker shall “comply with the measures established by the licensee to protect the environment and the health and safety of persons, maintain security, control the levels and doses of radiation, and control releases of radioactive nuclear substances and hazardous substances into the environment”.
- Subparagraph 17(c)(i) of the [General Nuclear Safety and Control Regulations](#) requires that every worker shall “promptly inform the licensee or the worker’s supervisor of any situation in which the worker believes there may be a significant increase in the risk to the environment or the health and safety of persons”.
- Paragraph 17(e) of the [General Nuclear Safety and Control Regulations](#) requires that every worker shall “take all reasonable precautions to ensure the worker’s own safety, the safety of the other persons at the site of the licensed activity, the protection of the environment, the protection of the public and the maintenance of the security of nuclear facilities and of nuclear substances”.
- Paragraph 3(d.1) of the [Class I Nuclear Facilities Regulations](#) requires that an application for a licence to operate a Class I nuclear facility shall contain “the proposed human performance program for the activity to be licensed, including measures to ensure workers’ fitness for duty”.

- Paragraph 6(d) of the *Class I Nuclear Facilities Regulations* stipulates that an application for a licence to operate a Class I nuclear facility shall contain “the proposed measures, policies, methods and procedures for operating and maintaining the nuclear facility”.
- Section 18.4 of the *Nuclear Security Regulations* states that “an authorization referred to in section 18 may be issued for any term not exceeding five years and shall be subject to any terms and conditions necessary to minimize the risk to the security of the facility.”
- Section 38 of the *Nuclear Security Regulations* requires that “every licensee shall develop a supervisory awareness program and implement it on an ongoing basis to ensure that its supervisors are trained to recognize behavioural changes in all personnel, including contractors that could pose a risk to security at a facility at which it carries on licensed activities.”

1.4 Relevant international standards and guidelines

The International Atomic Energy Agency (IAEA) has identified the need for nuclear facilities to address fitness for duty. The IAEA’s framework that supports fitness for duty is embedded in two safety requirement documents [1, 2] and in numerous safety guides [3 to 6].

For all nuclear facilities, the IAEA recommends that regulators inspect licensees’ fitness-for-duty programs and evaluate their effectiveness [3]. Regulators are also to ensure nuclear facility operators have “guidelines on fitness for duty in relation to hours of work, health, and substance abuse” [4].

With respect to drugs and alcohol, the IAEA recommends that all nuclear facilities have guidelines on fitness for duty related to substance use [5]. The IAEA further recommends that licensees have methods for identifying those with a tendency toward alcohol or drug abuse, and that administrative controls be established to allow the fitness for duty of shift personnel to be observed, verified and controlled. As well, the IAEA also advises that “personnel prone to drug or alcohol abuse should not be employed for safety related tasks” [6].

2. Background

Human performance is a key contributor to the safety and security of nuclear facilities. One factor that affects human performance is fitness for duty. The adoption of measures that monitor alcohol and drug use or abuse is a key component of ensuring worker fitness for duty. For the purposes of this document, fitness for duty is defined as:

A condition in which workers are physically, physiologically, and psychologically capable of competently and safely performing their tasks.

The implementation of an effective fitness-for-duty program relating to alcohol and drug use and abuse provides reasonable assurance that workers have the capacity, and are free of impairment that could hinder their ability, to competently and safely perform the duties of their position, and as such do not pose a safety or security risk.

The fitness-for-duty requirements herein in relation to alcohol and drug use and abuse represent reasonable occupational and operational requirements for the applicable worker population. An employer is responsible for assessing the extent, where considered necessary, of the duty to accommodate. In fulfilling the duty to accommodate, an employer is required to accommodate a worker whose need(s) are based on any of the grounds of discrimination in the *Canadian Human Rights Act* – for example, someone identified with a disability – to the point where accommodation would cause undue hardship for the employer [7]. The licensee is also responsible for ensuring that any duties assigned to a worker do not pose a risk to his or her health or safety, the health or safety of others, the safety of the facility and the environment, and do not impact the effectiveness of the licensee’s operation.

3. Managing Alcohol and Drug Use

With respect to alcohol and drug use and abuse, licensees shall manage the fitness for duty of applicable workers (see section 4.1) who could pose a risk to nuclear safety or security in accordance with their management system as defined in the licensee’s licensing basis. The following subsections specify how the management system’s generic requirements apply to managing fitness for duty in relation to alcohol and drug use and abuse.

3.1 Policy statements

Licensees shall establish, implement and maintain clear fitness-for-duty policy statements regarding alcohol and drug use and abuse. The policy statements shall provide workers with information on what is expected of them and the consequences that may result from policy violations.

Guidance

Licensees’ alcohol- and drug-related policy statements should:

1. prohibit reporting to work or remaining at work under the influence of alcohol, cannabis, cannabis-derived products, or illicit drugs;
2. prohibit bringing, keeping or consuming alcohol, cannabis, cannabis-derived products, illicit drugs, drug paraphernalia or prescribed medications without a legal prescription on the grounds of the high-security site;
3. reinforce the responsible use of prescription or over-the-counter medications, or mood-altering substances, and the process to follow if a worker uses medication that impairs or has the potential to impair his or her ability to competently and safely perform his or her duties;
4. describe the responsibilities of workers, supervisors, oversight personnel and escorts to report fitness-for-duty concerns in relation to alcohol and drug use and abuse;
5. describe the expectations regarding the reasonable length of time that workers should abstain from the use of alcohol and/or drugs prior to reporting to work, with due consideration of longer-term impairing effects.

3.2 Fitness-for-duty program

With respect to alcohol and drug use and abuse, a licensee shall implement a documented fitness-for-duty program that includes a set of coordinated measures designed to provide reasonable assurance that applicable workers (see section 4.1) are capable of performing their tasks and as such do not pose a risk to their safety, the safety of others, or the safety or security of

the facility. Note: In implementing the fitness-for-duty program, licensees are required to consider all relevant privacy-related legislation.

3.3 Authorities, accountabilities and responsibilities

With respect to alcohol and drug use and abuse, licensees shall define and document the authorities, accountabilities, and responsibilities for those involved with managing worker fitness for duty including the interfaces with external organizations.

Guidance

With respect to alcohol and drug use and abuse, licensees should define and document the authorities, accountabilities, and responsibilities of the following, if applicable:

- senior management
- supervisors, oversight personnel and escorts
- workers
- security personnel
- human resources
- fitness-for-duty program administrators
- duly qualified health professionals
- duly qualified forensic toxicologists
- duly qualified pharmacists
- breath alcohol technicians
- specimen collectors
- medical review officers (MROs)
- accredited laboratories
- third-party providers
- employee assistance program (EAP) providers
- substance abuse evaluation providers

3.4 General fitness-for-duty process

Licensees shall establish, implement and maintain a process to identify and manage applicable workers who have temporary or ongoing limitations that may make them incapable of performing their assigned duties competently and safely due to alcohol or drug use or abuse. This process shall include actions for a supervisor to take if he or she believes – through self-reporting, peer reporting, observed behaviour, physical condition, a fitness-for-duty screening or assessment, a health professional’s report or after receiving credible information – that a worker may be unable to competently and safely perform his or her assigned duties because of alcohol or drug use or abuse.

Licensees shall establish, implement and maintain a referral process to guide workers to seek assistance from the appropriate resources.

Guidance

The fitness-for-duty process may include both self-referrals and directed referrals to appropriate fitness-for-duty resources, such as health professionals, employee assistance program provider or

testing program through the fitness-for duty administrator. Processes should identify the conditions that warrant for-cause assessments.

Prior to a mandatory referral based on observed behaviour, a fitness-for-duty screening should be conducted. The screening should be based on face-to-face interaction between the worker, a supervisor and at least one other person. A screening checklist should be used.

3.5 Access to assistance

Licensees shall ensure that applicable workers have access to an EAP. EAPs shall be designed to achieve early intervention and provide confidential assistance.

Guidance

The EAP should offer confidential assessment, short-term counselling, referral services and treatment monitoring to workers who have problems, including alcohol or drug use or abuse that could adversely affect their ability to competently and safely perform their duties.

3.6 Behavioural observation

Licensees shall ensure that applicable workers are subject to behavioural observation, specifically related to alcohol or drug use or abuse.

3.6.1 Peer observation and reporting

Licensees shall ensure that expectations regarding peer observation and reporting are included in their fitness-for-duty processes and aligned with their respective policy statements on peer observation for potential alcohol or drug use or abuse issues.

3.6.2 Supervisory awareness program

As indicated in section 1.3 of this document, section 38 of the *Nuclear Security Regulations* requires licensees to develop a supervisory awareness program. This is to ensure that supervisors are trained to recognize behavioural changes in all personnel, including contractors that could pose a risk to security at a facility.

Supervisory awareness training shall be delivered to supervisors and other designated personnel identified by the licensee.

Guidance

Observations related to a worker's fitness for duty related to alcohol or drug use or abuse should be made in a variety of situations, such as during task assignments, observation and coaching sessions, field inspections, pre-job briefings, performance reviews, one-on-one sessions, shift turnovers and incident investigations.

Aberrant behaviour and incidents related to alcohol and drug use and abuse should be documented and trended to facilitate appropriate intervention strategies based on risk.

Supervisory awareness training may include the following aspects:

- knowledge of the authorities, accountabilities, and responsibilities of supervisors and other designated personnel with respect to behavioural observation
- knowledge of the interfaces between related fitness-for-duty policies, procedures, and supporting programs
- the ability to recognize behaviours that may indicate the possible use, sale, or possession of illegal drugs; use or possession of alcohol or impairment from prescription and over-the-counter medication onsite or while on duty

Further information on observed behaviours can be found in section 5.2.

3.7 Assessment and continual improvement

An assessment of the fitness-for-duty program related to alcohol and drug use and abuse and the supervisory awareness program shall be performed periodically to identify opportunities for continual improvement and to confirm the program's effectiveness.

Licensees shall carry out trend analyses of problems and causes related to the use and abuse of alcohol and drugs.

3.8 Training, education, and awareness

Licensees shall ensure that those with authorities, accountabilities, and responsibilities for monitoring alcohol and drug use and abuse, including workers, receive initial and continuing training commensurate with their authorities, accountabilities and responsibilities.

Guidance

With respect to alcohol and drug use and abuse, licensees' training, education and awareness for workers who are subject to the fitness-for-duty program should include the following aspects:

- knowledge of the fitness-for-duty policy statements and procedures that apply to the worker, the methods that will be used to implement them, and the consequences of violating the policy and procedures
- knowledge of the individual's authorities, accountabilities, and responsibilities under the fitness-for-duty program
- knowledge of the EAP and other support or assessment services available to the worker
- knowledge of the health and safety hazards associated with abuse of illegal and legal drugs and alcohol
- knowledge of the potential adverse effects of alcohol, and prescription and over-the-counter drugs on job performance
- the ability to recognize behaviours in peers that may indicate the possible use, sale or possession of illegal drugs; use or possession of alcohol or impairment from prescription and over-the-counter medication on site or while on duty
- knowledge of the individual's responsibility to report a fitness-for-duty concern and the ability to initiate appropriate actions related to self- and peer-reporting

Additional requirements and guidance related to training can be found in sections 3.6.2, 6.1, 6.2 and 6.5.

Requirements and guidance for training systems are found in REGDOC-2.2.2, *Personnel Training* [2].

4. Positions Subject to Alcohol and Drug Testing

4.1 Safety-critical and safety-sensitive positions

Safety-critical positions shall include:

1. workers certified under [Class I Nuclear Facilities Regulations](#) subsection 9 (2), excluding certified health physicists
2. onsite nuclear response force (NRF) members

For the purposes of alcohol and drug testing, safety-sensitive positions shall include:

3. certified health physicists
4. the following security personnel: nuclear security officers (NSOs), and designated non-NRF personnel
5. emergency response teams (ERTs) / fire brigade

Guidance

Additional information regarding certified workers and ERTs may be found in RD-204, *Certification of Persons Working at Nuclear Power Plants* [8], CSA N293, *Fire protection for nuclear power plants* [9], and CSA N393, *Fire protection for facilities that process, handle, or store nuclear substances* [10].

5. Alcohol and Drug-Testing Requirements by Circumstance and Workgroup

Alcohol and drug testing of workers holding safety-critical or safety-sensitive positions shall be conducted in accordance with the breath alcohol-testing and drug-testing processes described in sections 6.1 to 6.6. The testing circumstances relevant to the prescribed workgroups are summarized in table A.1 of appendix A.

5.1 Pre-placement alcohol and drug testing

Licensees shall require all candidates who succeed in progressing through all the previous stages of a job competition to a safety-critical position (see section 4.1, bullets 1 and 2) to submit to alcohol and drug testing as a condition of placement. Incumbent workers transferring into a safety-critical position (see section 4.1, bullets 1 and 2) shall also be required to submit to a pre-placement alcohol and drug test.

Guidance

As job applicants are not workers, a substance test should not be used as a screening tool and should only be administered once a candidate has met all other qualifications necessary.

5.2 Reasonable grounds alcohol and drug testing

Licensees shall require all workers in safety-critical or safety-sensitive positions (see section 4.1, bullets 1–5) to submit to for-cause testing under the reasonable grounds testing circumstance.

Licensees shall define within their fitness-for-duty governance documents when workers in safety-critical or safety-sensitive positions will be required to submit to for-cause reasonable grounds testing.

Under for-cause reasonable grounds testing, workers in safety-critical or safety-sensitive positions (see section 4.1, bullets 1–5) shall be required to submit to for-cause reasonable grounds testing when there is reasonable cause to believe, through observed behaviour, physical condition or after receiving credible information, that the individual is unfit to perform his or her duties, due to the adverse effects of alcohol or drug use. The grounds for for-cause reasonable grounds testing shall be independently verified by at least two people (one of whom is a supervisor).

Guidance

Observed behaviours and physical conditions that may establish for-cause reasonable grounds testing include:

- breath odour
- observed use or possession of alcohol, illicit drugs, or drug paraphernalia
- speech patterns
- physical appearance and behaviour
- an episode or events that suggest irrational or reckless behaviour

Further information on supervisory awareness is found in section 3.6.2.

5.3 Post-incident alcohol and drug testing

Licensees shall require all workers in safety-critical or safety-sensitive positions (see section 4.1 bullets 1–5) to submit to for-cause testing under the post-incident testing circumstance.

Under post-incident testing, workers in safety-critical or safety-sensitive positions (section 4.1 bullets 1–5) shall be required to submit to for-cause testing as soon as practicable after a significant incident where a human act or omission by the worker may have caused or contributed to the event.

Guidance

In deciding whether or not to conduct post-incident testing, it is not necessary to determine if alcohol or drugs were contributing factors to the significant incident.

Significant incidents refer to a subset of incidents that have safety significance (see Glossary for definitions of “incident” and “safety significance”).

5.4 Follow-up and return-to-duty alcohol and drug testing

Licensees shall require all workers in safety critical or safety-sensitive positions (see section 4.1, bullets 1–5) to submit to follow-up testing after confirmation of a substance use disorder by a health professional, and return-to-duty testing as part of the reinstatement process.

Workers shall be subject to follow-up alcohol and drug testing in an unannounced and random fashion at a minimum of every 3 months for a minimum period of 2 years. At the discretion of the health care professional, additional testing beyond these minimum requirements may be conducted to ensure abstinence.

Licensees shall, as part of the reinstatement process to a safety-critical or safety-sensitive position, require workers identified with a substance use disorder to be tested prior to returning to and on assuming safety-sensitive duties. The worker must have a negative drug test result and/or an alcohol test with an alcohol concentration below 20 mg/100mL before resuming performance of safety-sensitive duties.

5.5 Random alcohol and drug testing

Licensees shall require all workers holding safety-critical positions (see section 4.1, bullets 1 and 2) to submit to random alcohol and drug testing. Licensees' sampling process used to select these workers for random testing shall ensure that the number of random tests performed at least every 12 months is equal to at least 25 percent of the applicable worker population.

Licensees shall develop procedures and practices to ensure that random testing is administered in a manner that provides reasonable assurance that individuals are unable to predict when specimens will be collected.

The following shall be addressed for the implementation and conduct of random testing:

1. Ensure that all individuals in the population subject to testing have an equal probability of being selected and tested.
2. Require that individuals who are offsite when selected for testing, or who are onsite and are not reasonably available for testing when selected, be tested at the earliest reasonable opportunity when both the donor and specimen collectors are available to collect specimens for testing and without prior notification to the individual that he or she has been selected for testing.
3. Provide that an individual completing a test is immediately eligible for another unannounced test.

Guidance

The following should be considered for the implementation and conduct of random testing:

- Collect specimens on an unpredictable schedule, including weekends, night shifts and holidays, and at various times during a shift.
- Have testing administered by the fitness-for-duty program on a nominal weekly frequency.
- Require individuals who are selected for random testing to report to the collection site as soon as reasonably practicable after notification, within the time period specified in the fitness-for-duty program policy.
- Establish, implement and maintain alcohol- and drug-testing processes.

6. Alcohol- and Drug-Testing Processes

6.1 Breath alcohol-testing process

Licensees shall establish, implement and maintain a process to test workers holding safety-critical and safety-sensitive positions for the presence of alcohol.

Licensees shall retain or maintain competency in the administration, collection, and analysis of evidential breath alcohol testing. The qualified technicians conducting the breath alcohol testing shall be independent from workgroups subject to testing. For licensee-maintained processes, licensees shall establish, implement, and maintain procedures for the administration of evidential breath alcohol testing. For retained services, licensees shall ensure service providers maintain procedures for the administration of evidential breath alcohol testing.

Licensees shall ensure that an evidential breath testing instrument is used that has been evaluated, tested and recommended by the Alcohol Test Committee (a committee under the auspices of Canada's Department of Justice) as an approved instrument published in the *Approved Breath Analysis Instruments Order* (SI/85-201) [11].

Licensees shall ensure that the following blood alcohol concentrations (BACs) are used for the determination of positive breath alcohol test results:

1. A BAC below 20 mg/100mL shall be considered a negative test, and no further action is required.
2. A BAC from 20 to 39 mg/100mL shall be considered an action level. The licensees shall prohibit the worker from performing safety-sensitive duties until a determination of fitness indicates that the worker is fit to competently and safely perform his or her duties.
3. A BAC of 40 mg/100mL or greater shall be considered a positive test and a fitness-for-duty policy violation (see section 6.3).

Table B.1 in appendix B provides a summary of BAC ranges and associated actions [12].

Guidance

Licensees should refer to the Alcohol Test Committee when establishing procedures for the administration of evidential breath alcohol testing, including:

- the initial and continuing training and qualification of breath alcohol technicians for the operation of approved instruments, including conversion training
- the initial and continuing training and qualification of designated service personnel for the preventative and corrective maintenance of approved instruments
- the development and implementation of protocol(s) for:
 - maintaining approved instruments authorized for use at the nuclear site
 - the preparation required prior to conducting alcohol testing
 - handling and processing workers that will be tested, including escort procedures
 - conducting an initial alcohol test using a breath specimen
 - conducting a confirmatory test for alcohol (when the initial test is 20 mg/100mL or greater)
 - determining a confirmed positive breath alcohol test result
 - shy lung
 - documenting and reporting requirements of breath alcohol specimens

6.2 Drug-testing process

Licensees shall establish, implement and maintain a process to test workers holding safety-critical and safety-sensitive positions for the presence of drugs. In meeting this requirement, licensees may choose to use either laboratory urine drug testing or laboratory oral fluid drug testing, or a combination of both.

Licensees shall develop, implement, and maintain procedures for the administration of drug testing including the collection, storage, and transportation of specimens to a designated accredited laboratory. Licensees shall retain or maintain competency in the collection, storage and transportation of specimens, and shall ensure that specimen collectors are independent from workgroups subject to testing.

Licensees shall retain and utilize the services of an accredited laboratory to analyze and report the results of urine or oral fluid drug specimens. For urine drug testing, licensees shall use a laboratory accredited by the Substance Abuse and Mental Health Services Administration (SAMHSA)¹. For oral fluid drug testing, licensees shall use a laboratory accredited by SAMHSA or a laboratory that meets ISO/IEC 17025, *General Requirements for the Competence of Testing and Calibration Laboratories* [14].

For each drug class, licensees shall document in their governance whether urine or oral fluid test results will be used to determine a policy violation. Licensees shall direct the accredited laboratory to report positive test results in conjunction with the urine or oral fluid drug panel (initial and confirmatory cut-off thresholds) as established in appendix B (see tables B.2 and B.3 for urine and tables B.5 and B.6 for oral fluid).

Licensees shall develop, implement, and maintain a procedure for reviewing and verifying positive, adulterated or invalid drug test results from a medical, toxicological or pharmacological perspective. The procedure shall ensure that a medical review officer (MRO) is designated to review, interpret and verify the laboratory test results for each drug class as specified in the urine and oral fluid drug panels [13, 15] in appendix B.

Licensees shall direct the accredited laboratory to report all positive, adulterated or invalid test results directly to the MRO conducting the drug test review.

In determining whether the donor has violated the fitness-for-duty policy, licensees shall direct the MRO to:

1. provide the donor an opportunity to explain any alternative reasons for the positive test result
2. only report verified positive test results to the licensee

Licensees shall direct the MRO to raise any for-cause mandatory referrals for other fitness-for-duty assessments, as necessary, to ensure safety and security.

¹ Effective May 12, 1998, the Standards Council of Canada (SCC) voted to end its laboratory accreditation program and adopt United States Department of Transportation regulations for the conduct of forensic urine drug testing. The SCC program was formerly known as the Laboratory Accreditation Program for Substance Abuse (LAPSA).

Guidance

Procedures for the administration of drug-testing collection and transportation of specimens should include or make reference to the following:

- licensee-approved collection kits, containers, and other supplies for specimen collection
- protocol for chain of custody, including relevant forms
- protocol for urine and oral fluid specimen collection, including collector duties, specific collection site requirements, verification of donor identity, and potential collection errors (recoverable and non-recoverable)
- protocols for handling and processing workers that will be tested, including escort procedures
- protocol for verification and assurance of sample integrity, including tampering and adulteration
- protocols for urine and oral fluid specimen storage and security
- protocols for urine and oral fluid specimen packaging and transportation to a designated accredited laboratory
- licensee-approved shipment containers
- protocols for shy bladder and dry mouth
- protocol for refusal to test
- initial and continuing training and qualification of urine and oral fluid specimen collectors

Licenseses should retain and utilize the services of a third-party provider, where feasible, for the administration, collection, verification and assurance of specimen integrity and chain of custody, and shipment of specimens to an accredited laboratory.

Licenseses should consider adopting a dilution protocol for urine samples and should consider testing samples identified as dilute against the urine drug panel (initial and confirmatory cut-off thresholds) established in table B.4 [13] of appendix B.

Licenseses should direct the MRO to consult with duly qualified toxicologists, duly qualified pharmacists, or other specialists as required when reviewing, interpreting, and verifying test results. In the event that the MRO determines that there is a legitimate medical explanation for the positive drug test – such as legitimate use of prescription drugs, or a medical condition – the positive test should not be considered verified. However, a fitness-for-duty assessment may be required to determine if the worker is fit for duty.

6.2.1 Point of collection testing

Requirements and guidance contained above in section 6.2 also apply to point of collection testing (POCT), where appropriate.

Licenseses may choose to utilize POCT as a screening tool (following up with additional testing only for non-negative results) or to assess the risk of having a worker return to safety-sensitive or safety-critical duties pending the MRO's report on the urine- or oral-fluid-based laboratory test.

If licenseses choose to utilize POCT, a protocol shall be established and documented. Non-negative results shall be verified by laboratory immunoassay screening and confirmation testing.

For a minimum of 5% of negative POCT tests, licensees shall compare negative POCT results with laboratory-based results on the same type of biological sample (urine or oral fluid), for quality assurance purposes.

Licensees who decide to conduct POCT shall select devices that are:

1. certified by Health Canada or independently evaluated by qualified laboratory personnel on an initial and annual basis to ensure that the devices meet forensic standards such as specificity, sensitivity and efficiency
2. calibrated to the extent possible ($\pm 25\%$) with the urine or oral fluid drug testing cut-offs established in appendix B (see table B.2 for urine immunoassay or table B.5 for oral fluid immunoassay cut-offs)

If licensees choose to utilize POCT, POCT devices shall be used only in random or post-incident testing circumstances. POCT devices shall not be used in pre-placement, reasonable grounds, follow-up or return to duty testing circumstances.

Guidance

For the minimum 5% of negative POCT tests used to assess quality assurance, a second sample from the same person should be collected, labelled only with a quality assurance sample identifier, and sent to the laboratory for testing. The laboratory test results should be used to evaluate the performance of the POCT device and the collection techniques of the collector. As a good practice, all collectors and all sites should be evaluated every quarter.

6.3 Process for positive alcohol and drug tests

Workers who provide a verified positive alcohol or drug test shall be removed from safety-critical or safety-sensitive duties and referred for a mandatory substance abuse evaluation.

The licensee shall not consider the worker for reinstatement to safety-critical or safety-sensitive duties until a recommendation for reinstatement has been received from a duly qualified health professional.

6.4 Substance abuse evaluation process

Licensees shall establish, implement and maintain an assessment process to evaluate workers in safety-critical or safety-sensitive positions for a substance use disorder. Licensees shall identify the conditions under which a substance abuse evaluation is required, including a verified positive alcohol or drug test.

Licensees shall ensure that both licit and illicit drugs are addressed.

The substance abuse evaluation shall be conducted by a duly qualified health professional. Duly qualified health professionals shall be certified by a professional association that includes substance abuse evaluation or shall have received training in substance abuse evaluation and be affiliated with a provincial college of physicians or nurses.

Workers assessed as having a substance use disorder shall not return to safety-critical or safety-sensitive duties until they have met conditions for reinstatement, as recommended by the duly qualified health professional.

Guidance

The assessment process should include consideration of the following aspects:

- organizational and procedural interfaces between internal and external stakeholders with defined roles in the management of substance dependency, such as the duly qualified health professionals, supervisors and oversight personnel, and external third-party providers
- reporting to the designated fitness-for-duty program administrator
- referral to the licensee's designated substance testing facility

In determining the duly qualified health professional's qualifications, licensees may consider the following or equivalent certifying bodies as listed below:

- Canadian Addiction Counsellors Certification Federation
- Canadian Society for Addiction Medicine
- Canadian Counselling and Psychotherapy Association
- Association of Cooperative Counselling Therapists of Canada
- Canadian Professional Counsellors Association
- Indigenous Certification Board of Canada
- Canadian Council of Professional Certification

Substance use disorders may also be diagnosed through medical or psychological assessments.

Licensees should consider adopting relapse agreements with workers assessed as having a substance use disorder.

6.5 Investigative and alcohol and drug screening tools

Licensees shall establish and document the accepted use of investigative and alcohol and drug screening tools included in their respective fitness-for-duty programs. Use of these tools shall be clearly documented, and training programs shall be provided to support the designated personnel in the proper use of the tools.

Guidance

Licensees may consider the adoption of the following investigative and alcohol and drug screening tools:

- fitness-for-duty assessment screening checklist for supervisors
- fitness-for-duty self-assessment screening checklist for workers
- passive alcohol screening devices
- drug detection dogs and devices (for example, ion scanners)
- physical searches

6.6 Records

The licensee shall retain alcohol and drug testing results for workers holding safety-critical or safety-sensitive positions.

Appendix A: Alcohol and Drug Tests by Workgroup and Circumstance

Table A.1 provides a summary of the alcohol and drug testing to be conducted, by workgroup and circumstance.

Table A.1: Summary of alcohol and drug testing to be conducted, by workgroup and circumstance

Workgroup		Pre-placement	For-cause reasonable grounds	For-cause post-incident	Follow-up	Random
Certified workers (excluding certified health physicists)		YES	YES	YES	YES	YES
Security personnel	Onsite nuclear response force (NRF) members	YES	YES	YES	YES	YES
	Nuclear security officers	NO	YES	YES	YES	NO
	Designated non-NRF personnel	NO	YES	YES	YES	NO
Certified health physicists		NO	YES	YES	YES	NO
Emergency response teams / fire brigade		NO	YES	YES	YES	NO

Appendix B: Alcohol- and Drug-Testing Thresholds

B.1 Blood alcohol concentration ranges and associated actions

Table B.1 provides a summary of blood alcohol concentration (BAC) ranges and associated actions to be taken by licensees [12].

Table B.1: Blood alcohol concentration ranges and associated actions to be taken by licensees

BAC range	Action
Below 20 mg/100mL	Negative test – no action required
20 to 39 mg/100mL	Action level – removal of worker from safety-critical or safety-sensitive duties until assessed as fit
40 mg/100mL or greater	Positive test – fitness-for-duty policy violation and removal of worker from safety-critical or safety-sensitive duties until assessed as fit by duly qualified health professional

B.2 Urine immunoassay screening

Table B.2 provides the urine analysis drug panel and the associated cut-offs to be used for immunoassay screening [13].

Table B.2: Urine analysis drug panel and associated cut-offs

Drug / Drug class/ Metabolite	Cut-off (ng/mL)
Cocaine metabolite (benzoylecgonine)	150
Opiates :	
Morphine, codeine	2,000
Hydromorphone and hydrocodone	300
Oxymorphone and oxycodone	100
6-acetylmorphine	10
Amphetamines	500
Cannabinoids	50
Benzodiazepines	100
Methadone metabolite (EDDP)	100

B.3 Urine GC-MS and LC-MS/MS confirmation

Table B.3 provides the urine analysis drug panel and the associated cut-offs to be used for GC-MS and LC-MS/MS confirmation [13].

Table B.3: Urine analysis drug panel and associated cut-offs for GC-MS and LC-MS/MS confirmation

Drug / Drug class / Metabolite	Cut-off (ng/mL)
Amphetamines (amphetamine, methamphetamine, MDMA, MDA)	250
Cannabinoids (as 11-nor- Δ -9 THC COOH)	15
Cocaine metabolite (benzoylecgonine)	100
Methadone metabolite (EDDP)	100
Opiates:	
Morphine, codeine	2,000
Hydromorphone, hydrocodone, oxycodone and oxycodone	100
6-monoacetyl morphine (6-AM, heroin metabolite)	10
Benzodiazepines (LC-MS/MS):	
Oxazepam, temazepam, diazepam, nordiazepam	50
Alprazolam, lorazepam, triazolam, clonazepam	50
Bromazepam, flurazepam	50

B.4 Urine: Recommended dilution protocol cut-off concentrations

Table B.4 provides the urine analysis drug panel and the associated cut-offs recommended to be used as part of a dilution protocol for immunoassay screening and GC-MS and LC-MS/MS confirmation.

Table B.4: Urine analysis drug panel and recommended associated cut-offs to be used as part of dilution protocol

Drug / Drug class / Metabolite	Screening cut-off (ng/mL)	Confirmation cut-off (ng/mL)
Amphetamine/ methamphetamine	100	100
Benzodiazepines	50	50
Cannabinoids	20	6
Cocaine metabolite	15	15
Opiates (codeine and morphine only)	120	120
Methadone metabolite	50	50

B.5 Oral fluid immunoassay screening

Table B.5 provides the oral fluid analysis drug panel and the associated cut-offs to be used for immunoassay screening [15].

Table B.5: Oral fluid analysis drug panel and associated cut-offs

Drug / Drug class / Metabolite	Cut-off (ng/mL)
Amphetamines	50
Cannabinoids	10
Cocaine	20
Opiates:	
Morphine, codeine	30
Hydromorphone and hydrocodone	30
Oxymorphone and oxycodone	30
6-acetylmorphine	4
Benzodiazepines	10
Methadone	20

B.6 Oral fluid GC-MS and LC-MS/MS confirmation

Table B.6 provides the oral fluid analysis drug panel and the associated cut-offs to be used for GC-MS and LC-MS/MS confirmation [15].

Table B.6: Oral fluid analysis drug panel and associated cut-offs for GC-MS and LC-MS/MS confirmation

Drug / Drug class / Metabolite	Cut-off (ng/mL)
Amphetamines (amphetamine, methamphetamine)	25
Cannabinoids (THC)	5
Cocaine and its metabolite (benzoylecgonine)	8
Opiates:	
Morphine, codeine	15
Hydromorphone, hydrocodone, oxymorphone and oxycodone	15
6-monoacetyl morphine (6-AM, heroin metabolite)	2
Benzodiazepines (LC-MS/MS):	3
Methadone and its metabolite (EDDP)	15

Abbreviations

BAC	blood alcohol concentration
CSA	Canadian Standards Association
EAP	employee assistance program
ERT	emergency response team
FFD	fitness for duty
GC-MS	gas chromatography–mass spectrometry
IAEA	International Atomic Energy Agency
LC-MS/MS	liquid chromatography-tandem mass spectrometry
MRO	medical review officer
NRF	nuclear response force
NSO	nuclear security officer
POCT	point of collection testing

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 terms are either new terms being defined, or include revisions to the 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*.

dry mouth

The inability of a donor to provide a sufficient amount or volume of oral fluid (i.e., saliva) to permit a valid oral fluid drug test.

follow-up testing

As part of a follow-up plan to verify an individual's continued abstinence from substance abuse.

oral fluid specimen collector

A trained person who instructs and assists workers at an oral fluid collection site, receives the specimen provided by each worker and performs an initial inspection of that specimen, and initiates and completes a custody control form for that specimen.

point of collection testing

An immunoassay urine or oral fluid drug screening test that is conducted in the field outside the laboratory setting and that provides immediate results.

shy bladder

The inability to provide a urine sample as a result of a physiological or psychological medical condition.

shy lung

The inability to provide a sufficient amount or volume of breath to permit a valid alcohol test as a result of a physiological or psychological medical condition.

urine specimen collector

A trained person who instructs and assist workers at a urine collection site, receives the specimen provided by each worker and performs an initial inspection of that specimen, and initiates and completes a custody control form for that specimen.

References

1. International Atomic Energy Agency (IAEA), [GSR Part 1 \(Rev. 1\), Governmental, Legal and Regulatory Framework for Safety](#), Vienna, 2016.
2. IAEA, [NS-R-2, Safety of Nuclear Power Plants: Operation, Requirements](#), Vienna, 2000.
3. IAEA, [GS-G-1.3, Regulatory Inspection of Nuclear Facilities and Enforcement by the Regulatory Body](#), Vienna, 2002.
4. IAEA, [GS-G.1.2, Review and Assessment of Nuclear Facilities by the Regulatory Body](#), Vienna, 2002.
5. IAEA, NS-G-2.4, [The Operating Organization for Nuclear Power Plants](#), Vienna, 2001.
6. IAEA, NS-G-2.8, [Recruitment, Qualification and Training of Personnel for Nuclear Power Plants](#), Vienna, 2002.
7. Canadian Human Rights Commission, *Bona Fide Occupational Requirements and Bona Fide Justifications under the Canadian Human Rights Act –The Implications of Meiorin and Grismer*, Ottawa, 2007.
8. Canadian Nuclear Safety Commission, [RD-204, Certification of Persons Working at Nuclear Power Plants](#), Ottawa, 2008.
9. CSA Group, CSA N293, *Fire protection for nuclear power plants*, Mississauga, Ontario.
10. CSA Group, CSA N393, *Fire protection for facilities that process, handle, or store nuclear substances*, Mississauga, Ontario.
11. Canada, [Approved Breath Analysis Instruments Order](#) (SI/85-201).
12. J. Wigmore. [The Forensic Toxicology of Alcohol and Best Practices for Alcohol Testing in the Workplace: A Report to the Canadian Nuclear Safety Commission](#), RSP-0315, Ottawa, 2014.
13. A. Fraser, PhD. [Urine Drug Testing Practice: Report to the Canadian Nuclear Safety Commission](#), RSP-0314, Ottawa, 2014.
14. International Organization for Standardization, ISO/IEC 17025:2017, *General Requirements for the Competence of Testing and Calibration Laboratories*, Geneva, Switzerland.
15. M. Huestis, PhD. *Oral Fluid Drug Testing Practice: Report to the Canadian Nuclear Safety Commission*, RSP-673.2, Ottawa, 2019.

Additional Information

The following documents provide additional information that may be relevant and useful for understanding the requirements and guidance provided in this regulatory document:

- 1 Canadian Nuclear Safety Commission (CNSC), [INFO-0831, *Recent Alcohol and Drug Workplace Policies in Canada: Considerations for the Nuclear Industry*](#), Ottawa, 2012.
- 2 CNSC, [REGDOC-2.2.2, *Personnel Training*](#), Ottawa, 2016.
- 3 United States Nuclear Regulatory Commission, [NUREG/CR-7183, *Best Practices for Behavioral Observation Programs at Operating Power Reactors and Power Reactor Construction Sites*](#). Washington, D.C., 2014.
- 4 United States Department of Transportation, [*Prescription and Over-the Counter Medications Tool Kit*](#), Washington, D.C., 2011.
- 5 Canada, [*Canadian Human Rights Act*](#) (R.S.C., 1985, c. H-6).
- 6 Canadian Human Rights Commission, [*Accommodation Works! A user-friendly guide to working together on health issues in the workplace*](#), (no date).

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](#).