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Alcohol Test Committee - Comité des analyses d'alcool

Canadian Society of Forensic Science Alcohol Test Committee Recommended Best Practices for a Breath Alcohol Testing Program

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Introduction

The Canadian Society of Forensic Science (CSFS) established a "Special Committee on Breath Testing" in 1967 to study scientific, technical and law enforcement aspects of breath tests for alcohol¹. The Society believed it was important to emphasize that the determination of blood alcohol concentrations (BACs) by means of breath tests is a scientific process and, for that reason, must be performed according to proper scientific practices and standards established by scientists with specific knowledge of the subject. With this focus, the CSFS Committee developed recommended procedures for the performance of breath tests as well as minimum standards for training police officers in the use of the equipment, for the administration of a breath test program and for the materials to be used with the equipment. These standards were published in this Journal in December 1969, coincident with the introduction of the so-called "Breathalyzer" laws in Canada (1).

Because of these initial contributions to the development of a high standard of practice, the widely-recognized expertise of the Society and the members of the Committee, the Department of Justice invited the CSFS Committee (which became known as the *Breath Test Committee*) to be its principal scientific advisor on matters related to breath testing, a function that has continued to the present. Over many years, the Breath Test Committee kept abreast of advancements in breath test technology, changes in Criminal Code legislation and various issues surrounding breath testing. Some highlights include the introduction of road-side screening devices, the advent of automated breath test equipment, mobile breath testing and provisions to demand blood samples. The latter demonstrated the broadening interests of the Committee and its name was changed to *Alcohol Test Committee (ATC)* in 1985.

In the past, the Recommended Standards and Procedures of the Canadian Society of Forensic Science Alcohol Test Committee were published as a single document. Previous publications (1-9), track updated versions of standards and procedures over a period spanning more than 40 years. To provide better clarity the recommendations of the Committee have been separated into 3 documents:

1. Canadian Society of Forensic Science Alcohol Test Committee Recommended Operational Procedures. This document addresses recommended procedures for the

¹The unmodified word alcohol refers to ethyl alcohol.

operational use of Approved Instruments, Approved Screening Devices and Approved Containers.

2. Canadian Society of Forensic Science Alcohol Test Committee Recommended Best Practices for a Breath Alcohol Testing Program. This document addresses recommendations on the roles and qualifications of key personnel involved in the administration of a breath test program as well as recommendations regarding training, inspections, maintenance, modifications and physical factors.
3. Canadian Society of Forensic Science Alcohol Test Committee Equipment Standards and Evaluation Procedures. This document addresses equipment, materials and equipment evaluation procedures.

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2. The Breath Test Committee of the Canadian Society of Forensic Science. *Can. Soc. Forensic Sci. J.* 1977; 10: 135-138.
3. Breath Testing Standards. *Can. Soc. Forensic Sci. J.* 1980; 13: 38-41.
4. Recommended Standards and Procedures of the Canadian Society of Forensic Science Alcohol Test Committee. *Can. Soc. Forensic Sci. J.* 1986; 19(3): 164-222.
5. Recommended Standards and Procedures of the Canadian Society of Forensic Science Alcohol Test Committee. *Can. Soc. Forensic Sci. J.* 1995; 28(1): 1-25.
6. Recommended Standards and Procedures of the Canadian Society of Forensic Science Alcohol Test Committee. *Can. Soc. Forensic Sci. J.* 1998; 31(4): 205-231.
7. Recommended Standards and Procedures of the Canadian Society of Forensic Science Alcohol Test Committee. *Can. Soc. Forensic Sci. J.* 2003; 36(3): 101-127.
8. Recommended Standards and Procedures of the Canadian Society of Forensic Science Alcohol Test Committee. *Can. Soc. Forensic Sci. J.* 2009; 42(3): 1-61.
9. Recommended Standards and Procedures of the Canadian Society of Forensic Science Alcohol Test Committee. *Can. Soc. Forensic Sci. J.* 2013; 46(1): 1-50.

TABLE OF CONTENTS

OVERVIEW	5
I PROGRAM PERSONNEL	5
A. Program Director	5
B. Training Course Director.....	6
C. Field Coordinator.....	6
II TRAINING AND DESIGNATIONS.....	6
A. Approved Instruments	6
1. Qualified Technicians	6
2. Conversion Training	8
3. Proficiency Testing of Qualified Technicians	8
4. Refresher Training	9
5. Authority to Recommend Revocation of Designation.....	9
B. Approved Screening Devices	9
1. Screening Device Users.....	9
2. Screening Device Calibration Technicians.....	10
III INSPECTION, MAINTENANCE AND MODIFICATION	11
A. Inspections.....	11
B. Field Maintenance	11
C. Qualifications of Authorized Service Personnel	12
D. Modification	12
E. Inspection and Maintenance Documents.....	12
IV PHYSICAL RECOMMENDATIONS.....	12
A. Environmental Factors	12
B. Mobile or Remote Location Use	13

OVERVIEW

The administration of a breath test program requires the cooperation of key personnel including the Program Director, Training Course Director and Field Coordinators. Together, it is their responsibility to ensure that the major aspects of a quality assurance program are followed. Significant aspects include training with respect to Approved Instruments and Approved Screening Devices, properly maintained breath test equipment and physical recommendations for Approved Instruments. The following recommendations are consistent with established quality assurance principles used in other scientific measurements. It must be recognized, that consistent with other quality assurance practices, these recommendations help define the overall quality system of a program. They do not necessarily have a direct bearing on a given test result. These recommendations are not to be considered as required elements of proof additional to those already provided in the Criminal Code.

I PROGRAM PERSONNEL

A. Program Director

The breath test Program Director shall be a person who, if not the Training Course Director, works in cooperation with the Training Course Director. The Program Director shall have extensive knowledge and experience in breath alcohol testing, including all scientific and technical aspects, and should be employed by a forensic laboratory.

The duties of the Program Director should include the following:

- a. coordinates and monitors all activities for breath test programs in the province or territory as described in this document and in the Canadian Society of Forensic Science Alcohol Test Committee Recommended Operational Procedures;
- b. implements and/or recommends breath test policies and procedures for the province or territory;
- c. monitors changes and events in breath alcohol testing and takes appropriate action when warranted;
- d. if not the Training Course Director, then liaises with the Training Course Director on all aspects related to training;
- e. liaises with Field Coordinators who control or coordinate activities in their respective regions;
- f. ensures that examinations of authorized service centres are conducted, either personally or through a delegate.

B. Training Course Director

The Training Course Director may be the Program Director. He or she has the overall responsibility for directing all breath alcohol test courses and shall have the responsibility for recommending candidates suitable for designation as Qualified Technicians to the Attorney General of the province or territory; should be employed in a forensic laboratory; and shall possess the following qualifications:

- a. at minimum, a recognized bachelor of science degree or appropriate equivalent;
- b. extensive knowledge and experience in breath alcohol testing and interpretation of results;
- c. knowledge of the principles of current breath test methods;
- d. experience as an expert witness in this subject matter.

The Training Course Director is involved in the selection of training course personnel. Normally this includes suitably qualified persons from a forensic laboratory and experienced Qualified Technicians.

C. Field Coordinator

A Field Coordinator shall be an experienced Qualified Technician who has been approved by the Program Director. The duties of the Field Coordinator should include the following:

- a. inspect and review breath test activities in their designated region;
- b. advise Qualified Technicians and others whose duties impact on breath test programs;
- c. assist in the selection of trainees;
- d. maintain continuous liaison with the Program Director or forensic science laboratory providing support services;
- e. assist as required during training courses.

II TRAINING AND DESIGNATIONS

Training should be provided under the direction of a forensic science laboratory in Canada.

A. Approved Instruments

1. Qualified Technicians

The Criminal Code requires that breath samples taken pursuant to a demand under paragraph 254(3)(a)² be such that in the opinion of a Qualified Technician a proper analysis can be made. "Qualified Technician" in respect of breath samples means a

²Sections and Subsections refer to the Criminal Code as of 2014

person designated by the Attorney General as being qualified to operate an Approved Instrument [Subsection 254(1)]. The formal designation of Qualified Technicians as being qualified to operate an Approved Instrument should specify the specific model(s) of Approved Instrument(s) to which the designation applies.

Note: Section 2 of the Criminal Code defines "Attorney General" as "the Attorney General or Solicitor General of a province and includes his lawful deputy". For the Northwest Territories, the Yukon Territory, and Nunavut, "Attorney General" means the Attorney General of Canada and includes his lawful deputy.

a. Initial Qualifications of Candidates - selection of candidates for training should be from peace officers who have:

- i. regular involvement in the enforcement of impaired driving offences;
- ii. an interest in and an aptitude for technical aspects of law enforcement;
- iii. an ability to be an effective witness.

b. Training Course – Minimum Standards

i. Appropriate theory including:

- general scientific background information;
- principles of breath tests for alcohol;
- principles of the instrument technology;
- design and theory of operation of the instrument, including potential interfering substances and, where applicable, status codes and error messages;
- operational procedures for the instrument;
- instrument maintenance and service;
- quality assurance procedures;
- appropriate aspects of chemistry, physics, physiology and pharmacology;
- appropriate information on alcohol, drugs and traffic safety;
- appropriate aspects of law, evidence and testimony.

ii. Practical training including:

- testing with alcohol standards and other volatile substances;
- quality assurance and maintenance procedures;
- screen and error messages;
- performing at least 30 breath tests on a minimum of ten drinking subjects;
- procedures for the processing of drinking drivers;
- evidence presentation.

iii. Written and practical examinations.

2. Conversion Training

Before a Qualified Technician, previously qualified to operate an Approved Instrument, is designated to operate a different Approved Instrument, the Program Director or Training Course Director must determine that they are so qualified. The Program Director may decide that the difference(s) between Approved Instruments is not sufficient to require a formal training course. If the Program Director determines that a conversion training course is required, the course shall be under the supervision of the Training Course Director and shall contain the following elements:

a. Training Course - Minimum Standards

i. Appropriate theory including:

- review of the principles of breath tests for alcohol;
- appropriate aspects of chemistry and physics;
- principles of the instrument technology;
- design and theory of operation of the instrument, including potential interfering substances and, where applicable, status codes and error messages;
- operational procedures for the instrument;
- instrument maintenance and service;
- quality assurance procedures;
- aspects of law, evidence and testimony (as needed).

ii. Practical training including:

- testing with alcohol standards and other volatile substances;
- quality assurance and maintenance procedures;
- screen and error messages;
- performing 15 breath tests on a minimum of three drinking subjects.

iii. Written and practical examinations.

3. Proficiency Testing of Qualified Technicians

Each breath test program shall have a process to determine the proficiency of all Qualified Technicians on an annual basis. If proficiency is not demonstrated, a technician must successfully complete refresher training before resuming activity as a Qualified Technician. Proficiency testing should include a knowledge assessment and/or a practical assessment of the operation of the instrument.

4. Refresher Training

Qualified Technicians who have not been actively engaged in testing for more than twelve months, or who have failed to demonstrate competence during their annual proficiency test, shall undergo refresher training. The duration of this training and its supervision shall be at the discretion of the Training Course Director. Refresher training shall include a review of all appropriate elements of the initial training course, including demonstration of independent operational competence of the candidates.

5. Authority to Recommend Revocation of Designation

The Program Director has the authority to recommend that a Qualified Technician's designation be revoked.

B. Approved Screening Devices

The Criminal Code does not specify any particular designation or qualifications for users of Approved Screening Devices other than they are peace officers [Subsection 254(2)]. Nevertheless, some training is essential and standards are recommended herein for two types of personnel:

1. Screening Device Users

- a. Initial Qualifications - shall be peace officers engaged in general law enforcement and/or traffic law enforcement.
- b. Training - shall be provided by persons who are authorized for this purpose by the Training Course Director.
- c. Training Course Instructors - shall be Qualified Technicians and screening device calibration technicians or possess equivalent relevant training.
- d. Training Course - Minimum Standards
 - i. Appropriate theory including:
 - principles of breath tests for alcohol;
 - principles of mouth alcohol absorption;
 - interfering substances and false positive readings;
 - significance of Approved Screening Device readings as compared with Approved Instrument results;
 - appropriate aspects of law and presentation of evidence;
 - frequency of battery recharging and/or replacement;
 - frequency of calibration checks;

- record keeping.
- ii. Practical training including:
 - basic operational procedure(s);
 - use of accessories;
 - sampling techniques;
 - performing breath tests on human subjects to develop the proper technique for collection of breath samples;
 - storing, handling and transporting.
- iii. Written and practical examinations

2. Screening Device Calibration Technicians

- a. Initial Qualifications – shall be a screening device user and a Qualified Technician or possess equivalent relevant training.
- b. Training - shall be under the direction of the Training Course Director.
- c. Training Course Instructors – shall be persons who have appropriate knowledge and experience in breath alcohol testing and are authorized for this purpose by the Training Course Director.
- d. Training Course – Minimum Standards
 - i. Appropriate theory including:
 - principles of calibration;
 - review of the principles of breath tests for alcohol;
 - design and theory of operation of the appropriate screening device(s);
 - appropriate aspects of law and evidence.
 - ii. Practical training including:
 - calibration check procedure;
 - calibration procedure;
 - use of appropriate alcohol standards;
 - use of accessories.
 - iii. Instruction on the field use of the screening device(s) including:
 - storing, handling and transporting;

- frequency of calibration checks;
- battery recharging and/or replacement procedure;
- maintenance and repair;
- operational trouble-shooting;
- calibration record keeping.

iv. Written and practical examinations

III INSPECTION, MAINTENANCE AND MODIFICATION

Proper calibration and/or calibration check procedures are the primary means of assuring accuracy of the Approved Instrument, Approved Screening Device and accessory equipment at the time of use. Calibration of Approved Instruments and Approved Screening Devices shall be done with an aqueous alcohol standard. In addition to these calibrations and/or calibration checks, formal maintenance procedures are essential to the integrity of the breath test program. Records relating to periodic maintenance or inspections cannot address the working status of an Approved Instrument at the time of a breath test. The required quality control information which must be reviewed to assess the working order of an Approved Instrument is produced during the subject breath testing procedure.

A. Inspection

All Approved Instruments, Approved Screening Devices and accessory equipment intended for active use in the program shall be individually inspected before being placed into service, and periodically thereafter, to ensure that they initially meet, and continue to meet the manufacturer's specifications. The recommended interval between inspections is one year. All inspections shall be performed by persons deemed by the Program Director to meet the qualifications described in paragraph III.C. below. Accessory equipment includes simulators or other equipment required for the use or calibration of Approved Instruments and Approved Screening Devices.

The Program Director shall have the authority to conduct on-site examinations of facilities where maintenance and inspections are performed.

B. Field Maintenance

In addition to periodic inspections some equipment may require additional preventative maintenance, which may be performed at the field level by suitably trained individuals. If applicable, the Program Director shall develop a protocol for such maintenance, appropriate to the Approved Instrument, Approved Screening Device or accessory equipment.

C. Qualifications of Authorized Service Personnel

The Program Director shall ensure that persons performing preventative maintenance and/or periodic inspections on Approved Instruments, Approved Screening Devices and accessory equipment have:

- a. Appropriate training in the maintenance of all components of the respective Approved Instruments, Approved Screening Devices and accessory equipment.
- b. Detailed manuals for the procedures necessary to determine that the Approved Instruments, Approved Screening Devices and accessory equipment are in proper working order and continue to meet the manufacturer's specifications.

D. Modification

A modification to an Approved Instrument or Approved Screening Device must be approved by the Alcohol Test Committee. Installation of approved modifications shall be performed only by persons authorized by the Program Director. Following any modification, the equipment shall not be returned to active use in the program until it has successfully passed the equivalent of an initial inspection.

E. Inspection and Maintenance Documents

Inspection and maintenance documents shall be kept for each Approved Instrument, Approved Screening Device and accessory equipment in active use in the program. Documentation should include the results of all inspections and the maintenance history including records of parts replaced and approved modifications to hardware or software.

IV PHYSICAL RECOMMENDATIONS

A. Environmental Factors

Before an Approved Instrument is placed into service at a location, a Qualified Technician must ensure that the location is adequate for effective secure operation and has adequate ventilation. There must be sufficient space for the Approved Instrument, the simulator or dry gas alcohol standard cylinder, the Qualified Technician, the test subject and, if required, one observer. The Qualified Technician must also ensure that the power supply is adequate for the proper operation of the Approved Instrument, and that the instrument is surge-protected.

During performance of breath tests, no radio transmissions should be made from the room in which the Approved Instrument is being operated.

B. Mobile or Remote Location Use

Before an Approved Instrument is used in a mobile operation (e.g. van, vessel) or in an isolated location not served by a conventional power supply, the Program Director shall obtain written confirmation from the manufacturer that the instrument design permits such operation. Any information regarding special requirements for mobile or remote use should be obtained.

In mobile operations, the instrument shall, if required by its design, be securely fitted to an appropriate bench or counter.

If necessary, an auxiliary power supply may be used to operate the instrument. A voltage monitor may be desirable, depending on the design of the Approved Instrument.