



## **Calibration Training Manual**

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*Approved By: State Toxicologist*

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**Washington State Patrol  
Toxicology Laboratory Division**

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# 1 PREPARATION AND CERTIFICATION OF SIMULATOR SOLUTIONS FOR USE WITH BREATH TEST INSTRUMENTS

This document describes training required for preparation, certification and documentation of simulator solutions prepared by the Washington State Patrol (WSP) Toxicology Laboratory Division (TLD). The preparation and certification procedures are found in the Calibration Technical Manual.

The TLD and the Breath Test Program (BTP) of the Impaired Driving Section are both responsible for functions related to breath alcohol calibration. The TLD prepares and certifies two types of simulator solutions (calibration items): the External Standard Solution (ESS) and Quality Assurance Procedure (QAP) solutions. These solutions are then employed by the BTP, where the QAP solutions are used to set and confirm the calibration of evidentiary breath test instruments, and the ESS solution is used to verify the accuracy and proper working order of the Datamaster instrument as part of a field evidential breath test.

The ESS and QAP solutions are mixtures of water and ethanol, formulated to provide a standard ethanol vapor concentration when used in a breath alcohol simulator at  $34 \pm 0.3^{\circ}\text{C}$ . The ESS has a target vapor concentration of between 0.072 and 0.088 grams ethanol per 210 liters of air, inclusive. The QAP solutions have target vapor concentrations of 0.04, 0.08, 0.10, 0.15 and 0.20 g/210L (acceptable ranges found in Calibration Technical Manual). Solutions of other concentrations may be required periodically for instrument evaluation or validation.

Forensic Scientists are directed to seek guidance from Supervisors and Management for specific topics not addressed in this or other related documents. Any controlled TLD or agency documents referenced in this manual refer to the current official versions posted on the FLSB portal (SharePoint).

## 1.1 GOALS AND OBJECTIVES

The goal of this training module is for the trainee to become qualified to prepare, certify, and document the preparation of the ESS and QAP solutions for use with evidential breath testing instruments. The trainee will also become familiar with proper handling, storage and disposal of calibration items. Interaction with the BTP is encouraged in order to become familiar with the breath testing instruments and how the calibration items are used in the field.

## 1.2 PROCEDURES

Chapters 2, 3 and 4 of the Calibration Technical Manual describe the preparation and certification of the calibration items.

## 1.3 TRAINING TOPICS

1.3.1 Laboratory training – see the attached **CHECKLIST FOR PREPARATION & CERTIFICATION OF SIMULATOR SOLUTIONS FOR USE WITH A BREATH TEST INSTRUMENT**

1.3.2 Other recommended training (not required prior to completion of this module)

1.3.2.1 Observe a senior scientist testify in a breath alcohol case

- 1.3.2.2 Participate in a mock trial
- 1.3.2.3 Participate in and/or observe a drinking lab
- 1.3.2.4 Attend the Robert F. Borkenstein Course on Alcohol and Highway Safety

**1.4 REQUIRED READING**

- Calibration Technical Manual
- Calibration Quality Manual
- Operations Manual

**1.5 SUPPLEMENTAL READING**

Additional reading material can be found on the WSP SharePoint site and the Blood Alcohol Training Module.

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**CHECKLIST FOR PREPARATION AND CERTIFICATION OF SIMULATOR SOLUTIONS FOR USE WITH A BREATH TEST INSTRUMENT**

Trainee Name: _____	Trainer's Initials	Date
Trainee has completed the blood alcohol training module	_____	_____
Trainee has read and understands the ESS/QAP sections of the Calibration Technical Manual and has discussed the content with a trainer or supervisor	_____	_____
Trainee has watched Trainer prepare and bottle a batch of ESS	_____	_____
Trainer has watched Trainee successfully prepare a batch of ESS	_____	_____
Trainee has watched Trainer prepare and bottle a set of QAP solutions	_____	_____
Trainer has watched Trainee successfully prepare a set of QAP solutions	_____	_____
Trainee understands what documentation is required to certify a batch and where the batch files are located	_____	_____
Trainee understands the purpose of ESS as used with the breath test instrument	_____	_____
Trainee understands the purpose of QAP solutions as used with the breath test instrument	_____	_____
Trainee understands the basic statistical requirements used to certify an ESS batch	_____	_____
Trainee understands the basic statistical requirements used to certify QAP solutions	_____	_____

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The above-mentioned trainee has successfully completed all training topics listed in the checklist above, as required by the Calibration Technical Manual, and is deemed qualified to prepare and certify simulator solutions.

Trainee Signature	Date
Supervisor Signature	Date
State Toxicologist or Designee Signature	Date

## LIST OF CHANGES

Revision Date	Procedure	Change	Page Number
09/10/08	Original	N/A	All
04/02/13	Overall format	All chapters pertaining to the BTP were removed. Format changed, including header and footer. Overall content revised. See DRA dated 04/01/13 for details.	All
07/14/14	Introduction	Added QAP concentration of 0.20 g/210 L to list of solutions prepared and certified by the laboratory.	1
10/07/14	Overall content	Specified ESS for use with Datamaster instruments only. Added statement that any controlled TLD or agency documents referenced in this manual refer to the official versions posted on SharePoint. Removed "TLD" from title references in the Calibration Technical Manual. Added Calibration Quality Manual and Operations Manual to required reading list.	2-4
10/07/14	Overall format	Changed numbering format for entire document (page x of y), implemented revision number in footer and reformatted cover page to include the document ID, revision number, effective date, approval date and approval by State Toxicologist.	All

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