

Analytical Training Procedure for Chemistry Technician III

- 1.0 Purpose** – This procedure provides a training program for the preparation of blood alcohol and immunoassay samples in the Toxicology Units of the North Carolina State Crime Laboratory. This training will provide technicians with the background and working knowledge to prepare biological samples for specific analyses and give competent testimony. Practical/laboratory exercises are an integral part of this training program. The exercises are used to emphasize and reinforce the quality assurance and quality control of all tests performed. The trainee will be required to complete a written exam with a minimum score of 85 % and to complete all practical exercises successfully. The Toxicology Training Coordinator shall prepare a Training Section Completion Summary detailing training activities and evaluating progress. Upon successful completion of each training section, the Toxicology Training Coordinator and the trainee shall complete the Training Checklist and the Training Section Completion Summary.
- 2.0 Scope** - This procedure applies to toxicology lab technician trainees in the Toxicology Units of the State Crime Laboratory (SCL).
- 3.0 Objectives**
- 3.1** Know and understand the Laboratory and Section policies and procedures governing evidence handling and note taking.
 - 3.2** Successfully complete each training requirement in the Liquid Handling Systems Calibration Check section.
 - 3.3** Successfully complete each training requirement in the Blood Alcohol Sample Preparation section.
 - 3.4** Successfully complete a blood alcohol competency exam.
 - 3.5** Successfully complete each training requirement in the Immunoassay Sample Preparation section.
 - 3.6** Successfully complete an immunoassay competency exam.
 - 3.7** Successfully complete a written exam on both blood alcohol and immunoassay sample preparation.
 - 3.8** Successfully complete a moot court.
- 4.0 Procedure**
- 4.1 Training of Experienced Toxicology Lab Technician** - In the event a Toxicology Lab Technician with previous training and/or experience in toxicology sample preparation is hired, the Toxicology Technical Leader shall assess the Toxicology Lab Technician's knowledge, skills, and abilities based on any written training documentation provided by the Toxicology Lab Technician's previous employer. The Toxicology Lab Technician's training program will be designed based on the Toxicology Technical Leader's assessment.

4.2 Liquid Handling Systems Calibration Check

- 4.2.1** The trainee shall read and understand the applicable sections of the [Technical Procedure for General Laboratory Equipment](#).
- 4.2.2** The Toxicology Training Coordinator or designee shall review and discuss with the trainee the applicable sections of the [Technical Procedure for General Laboratory Equipment](#).
- 4.2.3** The Toxicology Training Coordinator or designee shall provide information to the trainee on how to perform the calibration check of the liquid handling systems.
- 4.2.4** The Toxicology Training Coordinator or designee shall provide information to the trainee on how to document the calibration check of the liquid handling systems.
- 4.2.5** The trainee shall successfully perform a calibration check of all Toxicology Liquid Handling Systems in accordance with the [Technical Procedure for General Laboratory Equipment](#).

4.3 Blood Alcohol Sample Preparation

- 4.3.1** The trainee shall read and understand the applicable sections of the [Technical Procedure for General Laboratory Equipment](#) and the [Technical Procedure for Headspace Gas Chromatography to Quantitate and Identify Volatiles in Liquids](#).
- 4.3.2** The Toxicology Training Coordinator or designee shall review and discuss with the trainee the applicable sections of the [Technical Procedure for General Laboratory Equipment](#) and the [Technical Procedure for Headspace Gas Chromatography to Quantitate and Identify Volatiles in Liquids](#).
- 4.3.3** The Toxicology Training Coordinator or designee shall provide information to the trainee on how to prepare all types of samples for blood alcohol analysis using the liquid handling systems.
- 4.3.4** The Toxicology Training Coordinator or designee shall provide information to the trainee on the quality control solutions used throughout the blood alcohol analysis.
- 4.3.5** The Toxicology Training Coordinator or designee shall provide information to the trainee on the documentation required when performing a blood alcohol analysis.
- 4.3.6** The trainee shall observe the preparation of samples for blood alcohol analysis by the Toxicology Training Coordinator or designee.
- 4.3.7** The trainee shall successfully prepare all the required blood alcohol daily system check samples in accordance with the [Technical Procedure for General Laboratory Equipment](#) and the [Technical Procedure for Headspace Gas Chromatography to Quantitate and Identify Volatiles in Liquids](#).
- 4.3.8** The trainee shall successfully prepare all the required blood alcohol calibration and verification samples and the required documentation in accordance with the [Technical Procedure for General Laboratory Equipment](#) and the [Technical Procedure for Headspace Gas Chromatography to Quantitate and Identify Volatiles in Liquids](#).

4.3.9 The trainee shall successfully prepare 50 practice blood alcohol samples in replicate and the required documentation in accordance with the [Technical Procedure for General Laboratory Equipment](#) and the [Technical Procedure for Headspace Gas Chromatography to Quantitate and Identify Volatiles in Liquids](#).

4.3.10 The trainee shall successfully complete a blood alcohol competency exam.

4.4 Immunoassay Sample Preparation

4.4.1 The trainee shall read and understand the applicable sections of the [Technical Procedure for General Laboratory Equipment](#), [Toxicology Quality Assurance](#), and the [Technical Procedure for ELISA Drug Screen](#).

4.4.2 The Toxicology Training Coordinator or designee shall review and discuss with the trainee the applicable sections of the [Technical Procedure for General Laboratory Equipment](#), [Toxicology Quality Assurance](#), and the [Technical Procedure for ELISA Drug Screen](#).

4.4.3 The Toxicology Training Coordinator or designee shall provide information to the trainee on how to prepare samples for analysis by immunoassay using the liquid handling systems.

4.4.4 The Toxicology Training Coordinator or designee shall provide information to the trainee on the quality control solutions used in the analysis of samples by immunoassay.

4.4.5 The Toxicology Training Coordinator or designee shall provide information to the trainee on the documentation required to be maintained when analyzing of samples by immunoassay.

4.4.6 The trainee shall observe the preparation of samples for analysis by immunoassay by the Toxicology Training Coordinator or designee.

4.4.7 The trainee shall successfully prepare the samples required for a Critical Reagent QC check of a new kit lot or other solution/standard in accordance with the [Technical Procedure for General Laboratory Equipment](#), [Toxicology Quality Assurance](#), and the [Technical Procedure for ELISA Drug Screen](#).

4.4.8 The trainee shall successfully prepare 45 practice samples, along with the required quality control samples, in accordance with the [Technical Procedure for General Laboratory Equipment](#) and the [Technical Procedure for ELISA Drug Screen](#).

4.4.9 The trainee shall successfully complete an immunoassay competency exam

4.5 Written Examination

4.5.1 The written examination shall demonstrate the trainee's knowledge and understanding of the procedures used in the preparation of samples for blood alcohol analysis.

4.5.2 The written examination shall demonstrate the trainee's knowledge and understanding of the procedures used in the preparation of samples for analysis by immunoassay.

- 4.5.3** The trainee shall complete a written exam on both blood alcohol and immunoassay sample preparation with a minimum score of 85 %.

4.6 Courtroom Testimony

- 4.6.1** The trainee shall attend a lecture, provided by the Toxicology Training Coordinator or designee, covering courtroom testimony.
- 4.6.2** The trainee shall successfully complete a moot court by achieving a satisfactory rating for all categories as documented in the SCL Moot Court Evaluation by the Toxicology Training Coordinator.

4.7 Required Reading

- [Technical Procedure for General Laboratory Equipment](#)
- [Technical Procedure for Headspace Gas Chromatography to Quantitate and Identify Volatiles in Liquids](#)
- [Technical Procedure for ELISA Drug Screen](#)
- [Toxicology Quality Assurance](#)

5.0 References

- 5.1** North Carolina State Crime Laboratory Procedures

6.0 Records

- Toxicology Lab Technician Training Checklist
- Training Section Completion Summary
- Moot Court Evaluation Rating Sheet

7.0 Attachments – N/A

Revision History		
Effective Date	Version Number	Reason
06/19/2015	1	Original Document