SANTA BARBARA COUNTY
SHERIFF'S OFFICE
FORENSICS UNIT
FINGERPRINT SECTION

QUALITY CONTROL

1.0 Scope

This SOP addresses the maintenance and intermediate check procedures required for instruments and critical reagents used in latent print processing.

2.0 Definitions

A. **Performance check** is a process used to verify the continued reliability of reagents or equipment.
B. **Quality control check (QC check)** is the testing of a reagent prior to its use on evidence to insure the reagent is working. It will be performed on prepared reagents or purchased reagents.
C. **Positive control** is a known sample that will react with the reagents used in a process.
D. **Negative control** is a sample that should not react with the reagents used in a process.

3.0 Performance Check

3.1 Chemical Processing

A. A performance check will be processed concurrently for all chemical fingerprint processing techniques. Chambers shall be cleaned when needed, and the windows and viewing ports shall be cleaned when visibility becomes poor.
B. A performance check is done by including a known latent print (positive control) along with the evidence in the chamber during a processing procedure. When the known latent develops, the chamber is functioning properly.
C. The undeveloped area around the known latent print is used as a negative control.

3.2 Documentation of Reagents

A. When a reagent is prepared, the following information shall be recorded in the Unit's reagent log book:
    1. Reagent batch number (e.g. 08231OBSH).
    2. Name of chemicals used in the preparation of the reagent.
    3. Vendor for chemical and lot number (if available).
    4. Date of preparation.
    5. Analyst who prepared the reagent.
    6. Results of the quality control check.

B. Bottles containing reagents shall be labeled with the reagent batch number, initials of the preparer, and date of preparation.
C. The reagent batch number must be recorded in the reagent log book.

3.3 Chemical Processing Reagents - Quality check

A. A QC check of all reagents shall be performed prior to use on evidentiary items.
    1. The QC check (positive and negative) will consist of the following:
        a. A known sample consistent with the type of samples encountered in routine casework (surface porosity, color, contaminant, etc.)
        b. A positive control is a deposit of latent print constituent appropriate for the reagent being tested on the known sample.
        c. A negative control is the area on the known sample outside the deposit of latent print constituent.
    2. The expected results of the QC check are listed in the directions for preparation of reagent working solutions.
    3. Reagents that do not pass quality checks are not put into service or are removed from service.
    4. Results of the QC check performed after preparation shall be documented in the laboratory maintained Reagent log book

4.0 Technical Review and Administrative Review

A. A technical review and administrative review will be performed on all cases (Refer to the Laboratory Quality Manual)
B. A verification of a fingerprint identification may be performed by the same individual as the technical review.

5.0 Validation of Research and Technology

5.1 Validation

A. Prior to the implementation of the technique or procedure, validation testing must be conducted.
B. Once a technique or procedure has been validated, appropriate documentation must be available.
C. The validation process includes:
    1. **Literature research:** Review of publications, academic materials, safety procedures and protocols, etc. involving the technique or procedure being validated.
    2. **Standard samples:** The samples should be selected to represent the type of specimens to be routinely analyzed by the technique or procedure.
    3. **Consistency:** The methods tested and results must show the same outcome on each test.
    4. **Reproducibility:** The test must be reproducible by another individual using the original test documentation.

5. **Environmental Studies:** When applicable, evaluate the method using known samples exposed to a variety of environmental condition

5.2 Validation of Established Technique or Procedure

A. Prior to implementing an existing technique or procedure, the reliability of the technique or procedure must be demonstrated. This internal validation must include:
   1. The techniques and procedures must be tested using similar samples and conditions as those being examined.
   2. If a modification has been made, the modification must be compared to the original technique or procedure using identical samples.
   3. Consistency and reproducibility must be determined by repetitive analyses.

5.3 Documentation

Documentation must be sufficient to ensure that any qualified individual could evaluate what was done and replicate the validation process.
Final documentation must be in the form of reports which may include tables and/or additional attachments.
Documentation of external validation must identify the name and professional affiliation of the person(s) conducting the study, date, as well as the research question, procedures, results and conclusion(s).

6.0 References

Scientific Working Group for Friction Ridge Analysis, Study, and Technology (SWGFAST) Guidelines, Validation of Research and Technology, 08/08/01 ver 1.0

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2012	Sgt. R. Cintron/11-13-12		11/13/12