Form	Deviation Request Form
Title	DRF_Evidence Handling Procedure
Laboratory Location	Lab-wide
Discipline/Section	Forensic Biology
A. Requested deviation applies to:	Section 5.2
B. Requested deviation:	Bullet denoting bone and tissue storage wording will be updated. Bone and tissue evidence shall be stored in the -20C freezer or room temperature is item is dried.
C. Necessity for the deviation:	To allow bone storage of dried samples to be at room temperature.
D: Technical Review and Authorization	
Technical Authorization	Yes - Authorized
Technical Authorizer	☐ DeHaan, Mackenzie
Duration	1 year / next procedure revision
E: Quality Assurance Authorization	
Acceptable within general QA guidelines and good laboratory practice?	Yes
Significant negative impact to Crime Laboratory Quality System?	No
QA Authorization	Yes - Authorized
QA Authorizer	☐ West, Jody
Effective Date:	8/12/2024

Version: 2.0
Created at 8/2/2024 2:04 PM by ☐ DeHaan, Mackenzie
Last modified at 8/5/2024 12:08 PM by ☐ West, Jody

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Procedure for Evidence Handling

1.0 Purpose - This procedure specifies the method for handling evidence and work products within the Forensic Biology Section.

2.0 Scope – This procedure applies to those Forensic Scientists who handle forensic evidence/work products.

3.0 Definitions – See Section Definitions List

4.0 Equipment, Materials and Reagents

- Thermo-Scientific Savant DNA 120 Speedvac Concentrator (or equivalent)
- Ethanol

5.0 Procedure

5.1 Each sample shall be labeled in accordance with the Procedure for Evidence Management and Forensic Biology Section Procedures**.**

5.1.1 Labeling

5.1.1.1 Hair packets received with a Sexual Assault Evidence Collection kit (SAECK) shall be given a sub-item number.

5.1.1.2 All tubes containing extracted DNA (including controls) shall contain the distinguishing portion of the case file number, the item number, the date of extraction, and the Forensic Scientist's initials.

5.1.1.3 When slides are prepared during the QIACube separation process, the set of slides shall be assigned a new identifier (e.g., C1) in Forensic Advantage to facilitate transfer to the investigating agency.

5.1.1.4 When extraction tubes containing knowns, unknowns, and controls are being transferred back to the investigating agency, the set of tubes shall be assigned a new identifier in FA.

5.1.1.5 If the dried DNA extracts are resubmitted to the Laboratory, the extracts will be reconstituted in AmpGrade water as follows: If the extracts were previously quantified with Quant Trio, the pellet may be reconstituted in the approximate remaining volume from the original extraction. If another quantification kit was used, add 50 µl to each sample to reconstitute the dried pellet. Place tubes in a thermomixer for a minimum of 3 hours at 800 rpm with no heat to ensure pellet is fully dissolved prior to processing.

5.1.1.5.1 Extract volumes (from either reconstituted samples or samples received in liquid form) need to be verified by the analyst of record to ensure there is enough material remaining in the tube to complete the processing.

5.1.1.6 Labeling of bulky evidence – Evidence packaging shall be labeled according to the Lab-wide Procedure for Evidence Management. The brown paper used during the processing of evidence shall be labeled (hand-labeled or using a printed evidence label). In cases where paper is not utilized (e.g., weapons) then the proximal packaging should be

identified. To preserve areas for possible future testing, labeling the evidence item itself must be avoided.

5.2 Storage - All evidence submitted for testing that is not actively being examined shall be stored as follows:

- All work product shall be refrigerated.
- Liquid blood samples shall be refrigerated (prior to making bloodstain).
- Bone and tissue evidence shall be stored in the -20◦C freezer.
- All other evidence not listed above shall be stored at room temperature,

5.3 Evidence Security - Evidence shall be maintained in a manner to avoid loss, contamination, and/or deleterious change but still allow access by the examiner during the examination process. All other evidence shall be sealed properly.

5.3.1 Evidence shall be secured prior to the Forensic Scientist leaving the room.

5.3.2 The Section Evidence Vault shall be secured at all times other than when an employee is in the vault.

5.4 General Procedure

5.4.1 SAECK Processing

5.4.1.1 The paperwork with the Sexual Assault Evidence Collection kits shall be evaluated for the time elapsed from alleged assault to collection of kit. For items of evidence, refer to the State Crime Laboratory Policy and Procedure for Evidence Submissions for the requirements for processing of hair evidence. If hair evidence is not being analyzed, this shall be reflected in the report.

5.4.1.2 The SAECK will be inventoried prior to analysis. Each item collected as a part of the SAECK will be given an individual sub-item number in FA. Empty envelopes need not be identified. Paperwork submitted will be scanned into the case record object repository. The analyst will also contact the agency if standards (e.g., consent or victim standards) are needed. The analyst will determine is the case is a type I or type II and add that information, along with the numbers of samples (with controls, if needed based on type of processing) that will be extracted, to the case details in FA.

5.4.2 All liquid blood samples shall be removed from evidence packages and refrigerated until a blood stain can be prepared on S&S 903 paper (or equivalent). If the Forensic Scientist determines the sample is too old or degraded to be useful as a standard, the sample need not be refrigerated and a bloodstain need not be prepared. If a bloodstain or known saliva sample is also sent with the liquid blood, then a bloodstain does not need to be made. All liquid blood samples shall be processed in a Biological Safety Cabinet. After preparation of the bloodstain, the blood tubes shall be re-capped and the tube shall be placed in a heat-sealed container and placed back with the evidence. The bloodstain shall be sub-itemed and packaged in a properly labeled and sealed coin envelope after it is dried. The report shall reflect "A bloodstain (Item ___) was prepared from the liquid blood sample (Item __)."

5.4.3 Swabbing evidence for DNA testing (e.g., touch DNA)

5.4.3.1 A maximum of 2 swabs shall be used to collect the sample from each item. Water or extraction buffer will be added to the swab to facilitate the transfer of the sample for further processing. Water should be used if the sample is being collected for future processing and the swabs are not being processed immediately.

5.4.3.2 For weapons, the grip or handle area should be swabbed. For firearms, the trigger, front sight area, and hammer should be swabbed. Care should be taken to avoid regions of potential value for latent processing.

5.4.3.3 For wearer of clothing, swab area(s) that would be in direct contact with the person wearing (e.g., collar, underarms, cuffs) or be handled with regularity (e.g., zipper or buttons.)

5.4.3.4 If a swabbing or cutting is taken from an item for DNA analysis, indicate in the case notes that a swabbing/cutting was taken. The report shall reflect "A swabbing/cutting (sub-item if applicable) was taken from ___ (Item __) for DNA/further testing.

5.4.4 To maximize the potential of obtaining results from minimal sample amounts, it is permissible to consume the entire piece of evidence during analysis. The complete consumption of the evidence shall be documented in the case notes. If evidence is consumed completely and no packaging remains, an evidence transfer shall be performed in Forensic Advantage indicating consumed in analysis.

5.4.5 Alternate Standard Selection and Use – In cases where no direct reference standard is submitted for comparison to questioned items in a case, alternate standards may be used instead.

5.4.5.1 If the sample is submitted as an alternate standard for processing (e.g., drink cup used by individual or item such as a razor) it may be processed along with other known references in the case.

5.4.5.2 If a sample in the case is identified prior to the start of processing (e.g., oral swab collected in a SAECK with no reported oral assault), then this sample may be processed along with other known reference standards in the case.

5.4.5.3 If a sample is extracted as a questioned item but then identified for use as an alternate standard after the extraction was performed, then the sample may be used as an alternate standard if the following criteria are met:

5.4.5.3.1 Sample must be from an item where the individual has a reasonable expectation of being present on the sample (e.g., Fraction 1 sample in a SAECK)

5.4.5.3.2 If the sample is being used as the standard for a female individual, there should be no male quant value detected.

5.4.5.3.3 The sample shall not be used as an alternate standard if Fraction 2 of the same sample is being amplified for use as a questioned sample.

5.4.5.3.4 The negative control associated with the sample shall also be processed. Ideally it should not be used as both a control for an alternate standard and a control for a questioned sample (e.g., amplifying the NegF1 along with the F1 oral swab for reference and F1 vaginal swab as unknown).

5.4.5.3.5 If samples do not meet the above criteria or there are other samples that need to be considered, the Technical Leader may approve use of an alternate standard. This approval will be documented in writing.

5.4.6 DNA Forensic Scientists shall return all evidence to the investigating agency. The work product shall be disposed of in the biohazard trash (excluding DNA extracts). Lysates (including dilutions) created during the use of Promega Casework Direct are work product and shall be disposed of upon the completion of the analysis of the case. Containers created for the transfer of lysates and/or hair roots are to be consumed in FA upon completion of the analysis of the case.

5.4.7 Upon completion of the DNA analysis, DNA extracts shall be dried down, assigned one identifier in Forensic Advantage (FA), and returned to the investigating agency. Once extracts and slides are created/identified in FA, they will be tracked as a part of the chain of custody for the case. The DNA extracts and their corresponding controls will be treated as follows:

5.4.7.1 Wipe the interior of each speedvac with ethanol. Separate speedvacs must be used when drying down extracts from known and unknown samples.

5.4.7.2 Centrifuge the extracts to remove any liquid that may have condensed in the cap. Remove the caps and discard them. Place the extract tubes in the speedvac.

5.4.7.3 Set the speedvac to "auto" mode, medium drying rate, and heat "off". The timer will automatically shut off after two hours. If the pellet does not appear completely dry, turn the speedvac on for a longer time.

5.4.7.4 Cap the tubes containing the dried extracts using new, clean caps and package for return to the submitting agency.

5.4.8 If the outer seal required remediation, then a note shall be made in the notes.

5.4.9 If an analyst must repackage an item, this shall be noted in the notes.

5.4.10 Inner packaging does not require a proper seal unless it becomes outer packaging for another section.

5.5 In cases where additional testing cannot be performed without additional standards being submitted, the following statement (or equivalent) shall be added to the Lab Report:

When the requested standards are obtained, resubmit Items ___ along with the standards for DNA analysis.

5.6 Edits in FA will be done for the following instances:

5.6.1 If the name on the evidence is different from the information in FA.

5.6.2 If the description of the evidence is significantly different from the information in FA.

5.6.3 If the FA evidence description states "swab" and there is additional location information provided.

5.6.4 To add the name to the reference standard.

5.7 Verification reviews will be performed for the following instances:

5.7.1 Microscopic identification of a spermatozoon

5.7.2 Second reading of RSID results

5.8 Disposition of Human Remains

5.8.1 When the Forensic Biology Section returns human remains to investigating agencies, the Disposition section of the Lab Report shall contain the following statement (or equivalent):

NOTE: Evidence being returned in this case includes human remains which need to be kept frozen to avoid degradation and offensive odors.

5.9 External Transfer of Evidence

5.9.1 All evidence transfers to outside agencies and from another Laboratory shall be made through the Evidence Control Unit.

5.9.2 The only exception to **5.9.1** shall be the direct transfer of evidence between Forensic Scientist and officer (e.g., Evidence Control requests Forensic Scientist to review and evaluate a case). Paperwork shall be cleared through the Evidence Control Unit.

6.0 Limitations – N/A

7.0 Safety

7.1 Assume that all body fluids contain bloodborne pathogens and handle accordingly.

7.2 If the examination involves a biohazard, wear proper personal protective equipment such as eye protection, lab coat, and/or gloves.

8.0 References – N/A

9.0 Records – N/A

10.0 Attachments – N/A

Revision History		
Effective Date	Version Number	Reason
05/24/2024	17	5.1.1.6 – added section clarifying evidence labeling; 5.2 – added freezer temp description; 5.4.6 – add container consumption in FA; made kit abbreviation consistent throughout