

# FORENSIC BIOLOGY EVIDENCE AND CASE MANAGEMENT MANUAL

Evidence Examination		
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## Evidence Examination

### 1 Guiding Principles and Scope

- 1.1 Specific methods to examine evidence varies by case type. Guidelines for the examination of the common types of evidence are presented in this procedure. If an analyst encounters any type of evidence not presented in this procedure, a supervisor shall be consulted for further guidance.

### 2 Note taking – general guidelines

- 2.1 Note taking and evidence documentation is the most important aspect of casework. Done improperly, it can jeopardize any analysis that follows. The notes are used to document the condition of the packaging and evidence, describe stains that may be found, present the results of presumptive and/or visual tests, support the conclusions of the report, and refresh the analyst's memory when required to testify in court. If the use of paper is required for notes, use a permanent medium such as ink—never pencil --and do not type notes using a program like Microsoft Word etc. Hard copy notes or sketches must be scanned for association to the case record in LIMS (as applicable).
- 2.1.1 Note taking starts with a description of the evidence packaging, including:
- Type of package – paper bag, manila envelope, zip-loc bag, etc.
  - Condition of package – wet, bloody, etc.
  - Type of seal – stapled, taped, unsealed.
  - Identifying marks – a brief description of labels, tags, handwritten notations, etc.
- 2.1.2 It is only necessary to include a few identifying marks. Details that may be typically included: voucher number, complaint number, and brief item description. Details that are not necessary to include: address of occurrence, ECT information, vehicle license plate/VIN number, weapon serial number or lead seal.
- 2.1.3 If there are incorrect identifying marks on your packaging, simply indicate this with an asterisk and state “transcribed as written” in the comments to indicate that the typo was not yours.
- 2.1.4 Each package **must** be labeled by the analyst with the evidence item identifier (see [Evidence Control](#) procedure for the numbering scheme), date, and his/her handwritten initials. Finding the marks in court is easier if the analyst always chooses the same location to put his or her marks.
- 2.2 Next is a description of the contents, the evidence itself. Fill in full evidence item descriptions and mark appropriate items as "(not examined)" during this stage in exam. This will save time at case write-up and ensures the COCs and other paperwork will print with accurate information

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downstream. Additionally, when entering the item description in LIMS the item does not need to be capitalized. Specific suggestions concerning different types of evidence will be discussed later. Examples:

- list screwdriver handle rather than Screwdriver handle
- swab to swab of/from “windowsill”
- L nails to left nails
- wrapper to condom wrapper (not examined)
- sexual offense evidence collection kit to sexual offense evidence collection kit from Jane Doe:

- 2.3 NOTE: Adding a colon indicates the sub-items are contained within the kit when viewing evidence inventory on the COC or Evidence Received section of the report. Only the victim’s name should be capitalized.
- 2.3.1 Each item must be itemized individually with a unique identifier. Each item should be marked by the analyst with the case number, voucher number, item number, date, and handwritten initials. This may be done by affixing a LIMS tag with the information or by writing directly on the item. In the instances where item 1 has a quantity greater than 1 (i.e. shoes), each item should be sub-itemized individually prior to exam.
- 2.3.1.1 If additional items not listed on the voucher are received, these items may also need to be examined. The items must be sub-itemized; creating new item numbers that do not exist on the voucher may cause LIMS issues downstream. The items can be sub-itemized in two ways: either itemized individually (i.e. voucher lists item 1- shirt and the package has a shirt and a sock, the items should be itemized as item 1.1- shirt and 1.2- sock) or in the event the parent item cannot be sub-itemized as previously mentioned, sub-items can be added (i.e. voucher lists item 1- pants, during the exam a lighter is found in the pocket, the items should be itemized as item 1-pants and 1.1-lighter).
- 2.3.1.2 If the item number(s) in LIMS does not match the voucher item numbers(s), notify the exam supervisor, repackage the items, and return the evidence to the EU. The exam supervisor should then notify the EU that the item numbers must be corrected. If the error is caught after exam is completed, notes should be added to the exam sheets to explain the discrepancy between the voucher paperwork and the itemization in LIMS.
- 2.3.2 Discrepancies between the voucher, laboratory request form, and the items in the package must be clearly documented and a deviation must be completed within the LIMS as necessary.
- 2.3.2.1 A folder labeled “Evidence Deficiency Discrepancy Forms” can be found in the FBIOLGY\_MAIN folder. All discrepancy forms that are created during exam should be saved by the EA as a PDF into this folder.

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2.3.3 Examples of when a discrepancy form is needed include, but are not limited to, are:

- commingled items (even if there is an explanation in the voucher as to why it was packaged as such, i.e., the c/v submits clothing to the PD already commingled)
- missing/extra items (i.e., papers, money)
- mis-identified items (ex. receive a knife when the voucher lists a screwdriver)
- improper or unsafe packaging
- wet evidence
- name of victim/elim/suspect is completely different on the voucher than it is on the package (ex. John Smith on the package and Jose Rodriguez on the voucher)

2.3.3.1 If the voucher number on the package is completely different than the voucher paperwork (i.e., voucher number is 1234 and the package has 5678) a discrepancy form is needed. The only exception is if the voucher number is incorrect due to what may be a transcription error (i.e., voucher number is 2111 and on the package is 2117); however, there must be additional information on the package to associate the package to the paperwork, such as the person's name or NYSID. This should be documented as suggested in section 2.1.3. If this information is not available, then a discrepancy must be filled out. Additionally, the lab supervisor should follow up with FID via telephone and resolve the situation prior to returning the evidence to the EU. If unable to be quickly resolved, the package should be returned to the EU and the analyst must NOT examine the items.

NOTE: Discrepant voucher numbers are usually due to the item being re-vouchered. If FID can provide documentation supporting the change in voucher number, the item of evidence can be examined.

2.3.3.2 If there are different voucher numbers across multiple packages for a single item (i.e. voucher number between the inner and outer packages for an exemplar are completely different), no discrepancy is needed as long as the outside package is correct. However, the incorrect voucher number on the inner package should be documented as suggested in section 2.1.3.

2.3.3.3 If upon opening a package it was discovered that the description on the voucher was incorrect (for example, a tank top was submitted, but the voucher says "T-shirt"), use the correct description in your notes and subsequent analyses. Do not perpetuate the mistake.

2.3.3.4 Examples of when a discrepancy is NOT needed are:

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- Incorrect complaint number
- Spelling of victim/elim/suspect name (e.g., David Jones vs Jones David or Jon vs John or Rodrigues vs Rodriguez)

NOTE: If there are discrepancies between the spelling of the complainant within paperwork submitted for a case, use the information present on the 61 (police report) submitted by the NYPD.

- 2.3.4 Standardized worksheets are available with diagrams of pants, shirts, shoes, etc., to aid in documenting stain patterns. If a diagram must be hand-drawn, make sure it is large enough to allow room to document all of the stains present. It is preferable to have only one diagram per page. When complete, scan this worksheet to a .pdf format and attach to the case record within the LIMS.
- 2.3.5 The LIMS has specific worksheets for the documentation of packages and of different types of items (for example: cigarette butts, fingernails, general items, etc.). The packaging worksheet only needs be completed for items that are being examined.
- 2.3.6 Digital photography may be substituted for diagrams. Each photograph **must** have a ruler visible in the frame, either a plain straight ruler or an x, y axis ruler. The ruler used should be based on the size of the item being photographed. When the photograph is printed, the analyst must mark the photograph to highlight stains, damage, etc., and add the appropriate item or sample identifier, the analyst's initials and date to the photograph. When complete, scan photographs to a .pdf format and attach to the case record within the LIMS.
- 2.4 If an error is found on the data recorded within the LIMS, the corrections shall be made in LIMS by the original Examining Analyst. If an analyst other than the original Examining Analyst makes changes to the LIMS data, a note must be made on the LIMS examination page (or a suitable substitution, such as a memorandum placed in the case record) indicating what was changed, the person who made the change, and on what date. Regardless of who makes the changes, all changes are tracked within the LIMS, including the date, time, and name of the user making the changes.
- 2.4.1 If corrections are made on hard copy examination documentation, a strike-through must be drawn through the error; and initialed and dated by the person making the changes. Additional notations, including interlineations, made on the examination documentation must also be initialed and dated. Never obliterate, including using "white-out," any notes or entry in a worksheet.
- 2.5 Each sample/stain that will be tested **must** be given a unique identifying number, clearly shown in the notes. See the "[Evidence Control](#)" procedure for the sample identification scheme. Each stain **must** be marked by the analyst. Marking may be done by affixing a tag with the information or by writing directly on the item.

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- 2.6 For most tests, the LIMS will generate a functional report documenting the test and the results. It is the responsibility of the IA/RA to ensure that the appropriate reports are included in the finalized case record in the LIMS.
- 2.7 When manually recording lot numbers, include the entire string of letters and numbers (i.e., KM1407021708).

### 3 Preparing for evidence examination

- 3.1 Before examining evidence, certain preparations should be made:
- 3.1.1 Review the Schedule of Analysis (SOA) for analyses to be performed on the item(s) in the case. Review all the information provided in the case record. This includes the Communication Log, vouchers, requests for laboratory examination, any previous laboratory reports, and police reports. If further information or clarification is needed, obtain it before beginning analyses.
- 3.1.1.1 When reviewing the SOA and preparing to examine an item for additional testing of a case, check to see if the evidence was originally marked as “(not examined)”. If this is the case, ensure that the original report has been distributed before removing the “(not examined)” notation from the item description.
- 3.1.1.2 A re-examination sheet must be used for additional exam or testing (i.e., serology) of a previously examined item (where the original exam is associated with a previous report). Do not modify the exam sheet of another analyst. However, if only an additional cutting is being made, an item re-examination sheet is not needed.
- 3.1.2 Plan your approach to the case. Certain items may have greater potential informational value than others or may need to be analyzed first as an investigative aid.
- 3.1.3 Ensure that you are wearing the proper Personal Protective Equipment.
- 3.1.4 Prepare the work area. The bench must be clean and free of clutter. The LIMS cart should be sufficiently charged if on battery power. Both the bench and the LIMS cart mouse, keyboard, and cart handle must be wiped down with 10% bleach followed by 70% ethanol. The work area should then be covered with paper to prevent the loss of small particles of evidence and to prevent the cross-transfer of materials from one item to another. Change the paper when a new case is begun, between different types of evidence within a case (such as between victim’s and suspect’s belongings), between different vouchers in a case, or whenever necessary. Make sure the necessary tools and reagents for the examination are clean and conveniently located, that there is adequate lighting available, and that note taking materials are at hand to record your observations.
- 3.1.5 All cutting utensils, tweezers, etc. must be cleaned before and after each use. The recommended cleaning method is 10% bleach, and/or distilled water, and then 70% ethanol.

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Gloves should be changed between each item, and additionally as needed. Lab coat should be changed after scraping an item.

## 4 Evidence examination – general guidelines

- 4.1 The examination of objects will be described in a general sense, covering a broad range of topics applicable to most items of evidence. **No two cases or items may be open for examination by the same analyst at the same time.**
- 4.2 Complete the General Packaging Worksheet as the initial documentation of each item.
- 4.2.1 Individual evidence packages that all relate to one case may be packaged in a mesh bag for convenience. This mesh bag should not be examined or counted as a packaging material. No documents, labels, or notes should be attached or written on the mesh bag. For the individual evidence packages, verify that outer packaging corresponds to lab request/voucher. Open the packaging. Avoid breaking existing seals when possible.
- 4.2.2 Outer packaging worksheets do not need to be created and filled out for items that are not scheduled for examination. You may note on the packaging worksheets for items you are examining that “items 4, 5, and 7 will not be examined at this time” for clarification if desired. However, the SOA will also reflect this information.
- 4.3 Remove items from packaging with care. Remember, materials of evidentiary value may adhere to the item and/or the packaging. Opening the evidence over bench paper will prevent the loss of these materials.
- 4.4 Examine one item at a time.
- 4.4.1 If it is known that an item requires trace evidence examinations, place an additional sheet of thin (newspaper weight) paper on top of the regular paper prior to opening an item of evidence. When done examining the item, wrap it up in the thin paper and place the entire bundle back into the original packaging. Any trace evidence that was dislodged from the item must be retained within the thin paper.
- 4.4.2 Be certain that the previous item has been re-packaged before opening another item on the work surface.
- 4.4.3 If an item of evidence is found to be wet when opened, the item should be allowed to air dry. The item should not be heated or exposed to direct sunlight. If the item has become foul smelling, allow it to dry in the fume hood with the fan running. If mold is present, consult a supervisor to determine if the item is suitable for testing.
- 4.4.4 The initial evaluation of the evidence is a visual inspection. It may be necessary to use a high intensity light source, UV light source, or alternate light source during the inspection, especially if semen or saliva is suspected. Magnification may be necessary. IR light source

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may be utilized to help find stains on dark colored materials as well. Refer to [the IR Camera User Guide](#) if needed.

- 4.4.5 A tactile examination is sometimes helpful for locating some biological stains, notably semen stains. Using gloved fingertips, lightly brush over the surface of the object, feeling for changes in surface texture or stiffness.
- 4.4.6 Surface debris such as hairs, fibers, wood fragments, etc. are to be described in the examination notes but are not to be collected. If such debris is found to have fallen on the bench paper, the bench paper is folded up to preserve the debris and returned with the evidence.
- 4.4.7 Perform the appropriate screening tests, such as Kastle-Meyer, Zygem lysis, or alternate light source. The lot numbers of all reagents and control testing results **must** be documented prior to use to ensure that the reagent isn't an expired lot within the LIMS.
- 4.4.8 All possible biological stains (KM positive or fluorescent) **must** be documented by notes, diagrams, and/or photography. All stains that are positive or sent on for further testing should have detailed notes with the location of the stain, size, heaviness (soaked into fabric, surface smear, etc.). Each photograph **must** have a ruler visible in the frame, either a plain straight ruler or an x, y axis ruler.

**NOTE:** Stain sizes do not need to be documented in both notes and diagram/photos due to the possibility of transcription errors.

- 4.4.8.1 On exam worksheets where the field "Stains seen? Y/N" is present, "Yes" may be selected if there is any staining on the item. Simply describe the staining in the comments section (e.g., dirt-like staining, blue stains, reddish-brown stains, etc.). Any staining consistent with biological material will then continue on for further testing. Do not select "No" simply because the staining present does not appear to be biological in nature as the field does not specify "Biological stains seen? Y/N".
- 4.4.8.2 For underwear submitted in relation to a sexual assault case, the entire underwear must be documented by photography including all stains seen. The photographs **must** include the following views: front outside, back outside, front inside, back inside. The examining analyst should also use their discretion if additional photographs should be taken.
- 4.4.8.3 For all other items, when multiple stains are seen but not all are tested (i.e. representative stain) the analyst must do one of the following:
- circle all stains on the item with a brief description in the notes.
  - describe in their notes all the stains seen (those scheduled for testing and those not).
  - draw a diagram or take a photograph of all the stains seen.

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- 4.4.8.4 If the item is being examined for the presence of blood (this includes swabs submitted by another party) does not have any stains resembling blood, consider utilizing the sensitivity of the KM test, which is more sensitive than the human eye. Perform a global swab(s) of the area using distilled water and KM test a small cutting. If the item of evidence is a swab, KM test a small cutting.
- 4.4.8.5 If it is apparent that there is a spatter pattern, consult a supervisor for guidance. Select representative stains for further testing.
- 4.4.8.6 Document whether or not the biological stains exhibit directionality, if applicable.
- 4.4.9 If the item is being examined for skin cells (touch or otherwise), any samples that are sent on for further testing should have detailed notes regarding the location of the area sampled. This can be documented by notes, diagrams and/or photography.
- 4.4.10 Cut, scrape, and/or swab the area for skin cells from the evidence item at the time of examination for the purpose of further testing.
- 4.4.10.1 When swabbing an area, the number of swabs collected **must** be recorded along with the type of swab being used (i.e. cotton vs Touch DNA swabs). Touch DNA swabs should be referenced as such in the notes.
- 4.4.10.2 Document the dimensions of the area sampled.
- 4.4.11 Cut, scrape, and/or swab the stain from the evidence item at the time of examination for the purpose of further testing.
- 4.4.11.1 Swabbing should only be done when cutting a stain is not practical or recommended.
- 4.4.11.2 When examining drinking containers, the area(s) that come into contact with someone's mouth should be sampled. For example, the rim of a cup or in cases where bottles are submitted both the mouth area and the inside cap area are swabbed and consumed to be submitted as one sample.
- 4.4.11.2.1 Use a single swab moistened with distilled water to sample both the mouth of the bottle and the inside of the cap as they represent a single surface for the purpose of collecting any saliva left behind. This will maximize the amount of DNA recovered. This applies to both bottles submitted as crime scene evidence as well as those submitted as pseudo-exemplars.
- 4.4.11.3 A representative stain can be submitted for testing when multiple stains of similar color, fluorescence and/or intensity are seen. For larger items it may be advisable to submit a representative stain from multiple areas of the item. If multiple stains are observed and grouped as representative due to similar characteristics or location, and one stain is chosen for testing, then it must be documented in the notes.



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- 4.4.11.4 Evaluate the case information when determining number of stains to submit for testing. For example, if there is more than one person bleeding it may be necessary to submit more stains. The number of stains submitted should be proportional to the number of potential contributors in attempt to detect all possible donors.
- 4.5** When the examination of an item or voucher is complete (body fluid identification complete and appropriate samples/cuttings submitted for DNA testing), seal the packaging with a permanent seal. The original packaging must be sealed at all entry points. All seals must be individually initialed and dated across the tape edge. **Barcodes and other agency identifiers on the outer packaging should not be covered or sealed over if possible.**
- 4.5.1 If multiple items of evidence are separately packaged for a single case, these items may be collected and stored in a mesh bag. This mesh bag is used only for the sake of convenience in grouping related evidence, and should not be tagged, labeled, or have any documentation attached to the mesh bag itself. Transfer the evidence to the Evidence Unit or secure storage location for storage.
- 4.6 Since post-mortem items are not vouchered, transfer them to retained storage once they are ready for storage.
- 4.7 Each time a retained sample is removed for analysis, the chain of custody must reflect this. The retained sample package must be opened and re-sealed according to Departmental guidelines.
- 4.8 Unless there is case information to the contrary, all samples will be processed as if DNA typing is to be performed.
- 4.8.1 For possible bloodstains that have tested positive with a presumptive test for blood, a portion of the stain or swab may be submitted for DNA extraction, depending on the case type.
- 4.8.2** For sexual assault cases with juvenile victims (under the age of 13), all samples believed to be derived from biological fluids (kit samples and/or stains from clothing) must be tested for either PSA and amylase using the [Seratec® PSA semiquant procedure](#), or submitted for molecular serology testing.
- 4.8.2.1** Seratec amylase testing will only be done on non-orifice locations such as vulvar, penile, scrotal, perianal, dried secretions swabs, and stains from clothing. Swabs collected near the mouth or anal cavity, will not be tested [with the Seratec amylase procedure](#). Consult the exam supervisor if needed.
- 4.8.2.2** For molecular serology testing, submit ¼ of a swab or a 3mm x 3mm cutting of a substrate.
- 4.8.3 Zygem lysis as triage for sexual assault cases: The primary means of processing sexual assault evidence is by screening for the presence of male DNA. If the case information

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suggests Male screening is not necessary (i.e. female victim and female suspect), then the samples can be cut for extraction intended for casework samples and not Zygem lysis.

## 4.8.3.1 Swabs:

4.8.3.1.1 For sexual assault cases with male assailants and female complainants, one of each swab type, and all dried secretion swabs, are submitted for Zygem lysis. The only exception would be any dried secretion swabs where the source of the biological material could be “touch” or “saliva” based on the case information, e.g., swab from right temple where the suspect punched the victim during the assault. Case information listed on the kit envelope may be helpful to evaluate the case. However, a checked box on the envelope without supporting information is not sufficient to deviate from Zygem lysis.

4.8.3.1.2 Label a 0.2ml tube with a tube label.

4.8.3.1.3 Cut ¼ of the swab and place in the tube.

4.8.3.1.4 Sperm searches and KM are not routinely used.

## 4.8.3.2 Additional sexual assault evidence (clothing, fabric, small items, items scheduled for touched DNA analysis):

4.8.3.2.1 Items exhibiting reddish brown stains must be KM tested.

4.8.3.2.2 For cases with juvenile victims (under the age of 13), potential biological stains must be tested for either PSA and amylase using the [Seratec® PSA semiquant procedure](#), or submitted for molecular serology testing (See 4.8.2).

4.8.3.2.3 **Note:** If a stain is observed (visually or under ALS) in the area that needs to be sampled for touch, consult the exam supervisor. If needed, the exam supervisor will reach out to the DA’s office for clarification since serology testing has been requested by the DA’s offices for all sexual assault cases involving juveniles. Examination of the item may need to be paused until a decision is made.

4.8.3.2.4 If the case information suggests Male screening is not necessary (i.e., female victim and female suspect), then the samples can be cut for extraction intended for casework samples and not Zygem lysis.

4.8.3.2.5 For sexual assault cases with male assailants and female complainants, a portion of the potential biological stains, including those that fluoresce, have reddish-brown or yellow-white coloration must be documented and cut for Zygem lysis.

4.8.3.2.6 Label a 0.2mL tube with a tube label.

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4.8.3.2.7 Cut a 5x5mm section of the material and place in the labeled tube.

4.8.3.3 Submit the samples to a Zygem Y test batch.

4.8.4 To prepare samples for DNA extraction, submit the appropriate amount of sample for testing and label extraction tubes with the sample identifier, such as the last two digits of the case followed by 1-2 letters/numbers describing the item (i.e. grip of gun from case FB14-00567, item 1 may have tube label “67G” or “671”). When designating short sample names, select names that describe the item rather than its sampled stain (i.e. instead of “stain 1” and “stain 2”, “shirt 1” and “shirt 2” may be used to designate two stains on a shirt). Additionally, select short sample names that allow for similar items to be distinguished (i.e., samples from a black hat and a red hat on a voucher may be differentiated by using “blhat” and “rdhat” rather than “hat1” and “hat2.”) Lastly, add one of the following suffixes to the OCME ID:

4.8.4.1 Possible blood – portion of bloodstain or swab about 3mm square, or 3uL whole blood. Suffix added to OCME ID: BL.

4.8.4.2 Possible saliva – portion of stain about 5mm square or one third of a swab. However, items of evidence such as cups, straws and bottles will be consumed, and add suffix to OCME ID: AM.

4.8.4.2.1 For cigarette butts, cut a portion of the filter and paper from the unburnt end. Add suffix to OCME ID: CB.

4.8.4.3 Possible semen – portion of semen stain about 5mm square, one third of a swab, or 3uL of whole semen.

4.8.4.4 CODIS abbreviations used for sexual assault kits can be used for the short sample name for evidence cuttings in LIMS. These abbreviations are recommended for SAKs, though not required:

- oral swab OS
- dried secretion swab DS
- perianal swab PA
- anal swab AS
- penile swab PS
- vulvar swab VU
- vaginal swab VS
- cervical swab CS

4.8.4.5 Scrapings (of clothing items) – retain half of the scrapings with the evidence if possible. Suffix added to OCME ID: S.

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4.8.4.5.1 Clothing items swabbed with a cotton swab and distilled water for wearer, one half of the swab will be submitted for testing (retain the remainder with the evidence). Suffix added to OCME ID: S.

4.8.4.6 Swab(s) of touched items-

4.8.4.6.1 Swabs submitted by the NYPD will be consumed. Suffix added to OCME ID: PT.

4.8.4.6.2 Touch DNA swabs and cotton swabs used to sample items by Forensic Biology will be consumed. Suffix added to OCME ID: T.

4.8.4.7 Suffix ST should be added for any “touch” or “saliva” sample that is being screened for male that is not going to Zygem or automatic differential extraction.

### Applicable samples:

- dried secretion swabs (female victim, male suspect) being sent to EZ1
- touched C/V clothing (female victim, male suspect) being sent to EZ1

### Non-applicable samples:

- any sample being collected for female DNA
- any sample sent to Zygem or differential extraction

4.8.5 Be mindful of the amount of scrapings and/or Touch DNA swabs being placed in extraction tubes. No more than 5 Touch DNA swabs should be placed in a tube. Should the exam require over 5 Touch DNA swabs, the swabs can be split into multiple extraction tubes. (See evidence [item and sample identifier portion of the LIMS manual.](#)) Excessive amounts of substrate may hinder the extraction process.

4.8.6 Create the sample and schedule the appropriate extraction procedure for the sample (exemplars, bloodstains, semen stains, touched items, other evidence, or one-step). Scheduling a sample for an incorrect extraction process may lead to the subsequent results being declared inconclusive; see a supervisor if you have any questions about whether a particular sample is evidence or an exemplar.

4.8.7 All extraction tubes should be transferred to an extraction refrigerator.

4.9 When handling each sample:

4.9.1 Use a clean cutting surface for each sample, such as a lint-free wipe.

4.9.2 Use clean scissors for cutting each sample.

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## FORENSIC BIOLOGY EVIDENCE AND CASE MANAGEMENT MANUAL

<b>Evidence Examination</b>		
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- 4.9.3 Use lint-free wipes or clean tube openers to open sample tubes and blood tubes.
- 4.10 If possible, the entirety of an item or sample should not be consumed during analysis. It is recommended that at least 25% of the item or sample be saved for future analysis, if needed. However, some categories of evidence samples will be routinely consumed:
- Samples from guns
  - Touched items from any category of crime type
  - Samples from drinking containers
- 4.11 In addition, if in the opinion of the analyst consumption of the sample is necessary to have the best chance to obtain results, the item or sample may be consumed. Whenever an item or sample from an item is consumed, the notes must clearly state this.
- 4.12 During the normal course of examination in the limited access laboratory, evidence need not be sealed when left unattended for a short period of time (such as when the analyst takes a lunch break). However, measures must be taken to prevent the unattended evidence from coming into accidental contact with other items of evidence or personnel. For example, swabs and small clothing items should be returned to its containers, and larger items (such as bed sheets on an examination hanger) should be moved to areas of the laboratory where accidental contact by other personnel will be limited.
- 4.12.1 Direct any questions regarding what prevention measures should be taken to a supervisor prior to leaving the evidence unattended.
- 4.12.2 Evidence in the process of examination may not be left unattended overnight without first consulting with a supervisor. Without prior approval from a supervisor, all evidence must be properly sealed and returned to a secure storage location at the end of the day.
- 4.12.3 Under certain circumstances, the supervisor may allow evidence in the process of examination to be left unattended overnight. However, this practice is to be limited based on the necessity, and the risk of accidental contact with other items of evidence or personnel must be minimized (see 4.12, above). For example, a supervisor may approve evidence to be left unattended overnight if an item of evidence is found to be wet when opened and must be air dried or dried in a hood with the fan running. However, the supervisor must ensure that all risks of accidental contact with other items of evidence or personnel are minimized.

## 5 Evidence Examination – Touched Items

- 5.1 Handled or touched items may be expected to yield low amounts of DNA. These items should be swabbed or scraped according to the protocols described below.
- 5.2 Documentation
- 5.2.1 Complete the General Packaging Worksheet as the initial documentation of each item.

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5.2.2 Follow the [Note taking – general guidelines](#) and [Evidence examination – general guidelines](#) for documentation of all items and samples taken. For further clarification see below.

5.2.2.1 Note the general appearance of the item. For example, note the color, the dimensions, and whether the item appeared to be dirty or possibly treated with latent print developers such as fingerprint powders or cyano-acrylate (fuming) etc.

5.2.2.2 Note the specific area being swabbed and/or any stains observed. Include the dimensions of the stain or area.

5.2.2.3 If an area is reddish brown, KM test the area if appropriate. For a very small area, consult a supervisor.

5.2.2.4 Samples from handled or touched items must be consumed and reflected as such in the exam notes.

5.2.3 Determine if an item should have multiple samples taken; this depends on the goal of the testing. Describe the samples taken in detail in the notes.

5.2.4 Examples follow:

- For duct tape used to bind a victim, multiple samples may be taken depending upon the circumstances of the case and the item. These samples may include the ends of the non-sticky side of the tape, the ends of the sticky side of the tape as well as the middle of the non-sticky side of the tape.
- For ligatures like wire, rope or zip ties used to bind a victim, samples should be taken from the portion of the item that extends from the “knot” avoiding the area that may come into contact with the victim. For cases where the zip tie was not used on the victim the entire item may be swabbed for who came in contact with it. Evaluate case circumstances prior to examining the item to establish your approach.
- Similarly, a bat may be divided into the following three sections: the top or where the bat came into contact with the victim, the middle or barrel of the bat which may have the victim’s and/or the handler’s DNA, and the handle of the bat.

5.2.4.1 Each of the sections will be initially treated as separate samples.

5.3 Swabbing a touched item using 0.01% SDS

5.3.1 Obtain as many irradiated Touch DNA swabs and aliquots of the 0.01% SDS swabbing solution as may be necessary for the item currently being examined. As a general rule, approximately 6 square inches may be effectively swabbed with one Touch DNA swab. This is dependent on the condition and type of evidence being examined.

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- 5.3.2 Cotton swabs moistened with 0.01% SDS may also be used when swabbing very large areas that would otherwise require an extreme amount of Touch DNA swabs or where the texture of the item would prove troublesome for a Touch DNA swab.
- 5.3.3 Do not open the swab tube until you are ready to swab the item.
- 5.3.4 Clean a set of tweezers with 10% bleach, and 70% ETOH.
- 5.3.5 With a tube opener or lint-free wipe, open the tube and remove the swab with tweezers.
- 5.3.6 Dip a portion of the swab into the swabbing solution (0.01% SDS). Do not saturate, rather moisten, the swab. If too much SDS solution is used, DNA may be left behind on the item.
- 5.3.7 Swab the target area by folding or balling the swab up with the tweezers.
- 5.3.8 Thoroughly swab the target area with gentle pressure making sure to leave as little of the swabbing solution behind as possible.
- 5.3.8.1 Multiple swabs may be used for a single area, as necessary. Document the use of multiple swabs and note the area which was swabbed. Only submit as many swabs in a single tube as may be effectively covered by digestion buffer or master mix at the extraction stage. (The samples divided into separate extraction tubes may then be recombined into one extract in a microcon step.)
- 5.3.8.2 Should residual SDS be left on an item, use a dry Touch DNA swab to collect it and include it in the extraction tube to be extracted along with the original swab(s).
- 5.3.8.3 If a cotton swab was used, cut the exterior layer of cotton or surface of the swab that appears to have come in contact with the evidence. Starting from the area of the initial cut, peel the outer layer of the swab. Cut in circular pattern, essentially lifting that top layer off the stick with the scissors. Take care not to cut the wooden stick.
- 5.3.8.4 Place the swab(s) into the extraction tube(s).
- 5.3.8.5 When swabbing more than one item from a case use a fresh tube of swabbing solution for each item.
- 5.3.8.6 Change gloves between items when swabbing different pieces of evidence.
- 5.4 Cutting touched item swabs submitted by another party:
- 5.4.1 If evidence is a swab, cut the entire swab and place in an irradiated extraction tube.
- 5.4.2 If the touched item swab has reddish-brown staining, KM test the stain. If the stain is KM positive, treat the swab as a KM positive swab and cut a portion of the swab for extraction.

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- 5.4.3 Cut the exterior layer of cotton or surface of the swab that appears to have come in contact with the evidence. Starting from the area of the initial cut, peel the outer layer of the swab. Cut in circular pattern, essentially lifting that top layer off the stick with the scissors. Take care not to cut the wooden stick.
- 5.4.4 Repackage the evidence and return to a secure storage location.

### 6 Evidence examination – weapons

- 6.1 Weapons are frequently submitted for bloodstain exam and/or for the recovery of DNA from skin cells, depending on the case scenario. Weapons can consist of knives, guns, bottles, baseball bats, and numerous other items.
- 6.2 Weapons should be thoroughly described and examined. Follow the general guidelines for note taking and evidence examination when examining any weapon.
- 6.3 Beware of sharp objects that have penetrated their packaging and/or are loose inside their package and could inflict injury.
- 6.4 Complete the General Packaging Worksheet as the initial documentation of each item.
- 6.5 Complete the General Item Examination Worksheet for each item.
- 6.5.1 Describe the general condition of the item, such as presence of rust or fingerprint powder. Certain weapons (e.g. knives) should be tethered within their evidence packaging. If not, a deviation should be logged.
- 6.5.2 Measure the physical dimensions of the item. In the case of a knife, this should include description of knife blade such as thickness, shape, cross-sectional shape, length, width, number of blades, brand names, etc. Photograph the weapon if any serology positive stains are found or if the item is being sampled for skin cells.
- 6.5.3 As necessary, examine under a magnifier, high intensity oblique light, infrared light, or stereomicroscope for traces of fibers, hairs, blood, or other materials of evidentiary value. All trace evidence should be documented in the notes using descriptions, diagrams, and/or photography. Any trace evidence that is found to have fallen on the bench paper is folded up to preserve it and returned with the evidence.
- 6.5.4 Look carefully for directional spatters of blood on weapons. Discuss any directional stains with a supervisor before performing any analyses.
- 6.5.5 Knives, sheaths, or other weapons may be dismantled as necessary for further examination. Always photograph or diagram the intact items before dismantling.



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- 6.5.6 All stains **must** be documented by notes, diagrams, and/or photography. Note the location of the stain, size, heaviness (soaked into fabric, surface smear, etc.), and any directionality of the stain pattern. Each photograph **must** have a ruler visible in the frame, either a straight ruler or an x, y axis ruler.
- 6.5.7 If the area being examined for blood does not have any stains resembling blood, consider utilizing the sensitivity of the KM test, which is more sensitive than the human eye. Perform a global swab(s) of the area using distilled water and KM test a small cutting. If the swab is KM negative, retain the remainder of the swab in a coin envelope. If the swab is KM positive, consider consuming the swab for extraction.
- 6.5.8 Make every effort to avoid stained areas when sampling the handle of a weapon. The handle of the item should be sampled using 0.01% SDS and Touch DNA swabs. In cases where the “handle” end of the weapon is unknown (e.g., crowbar), treat each end separately as if it could have been the handle.
- 6.5.9 After examining a knife or other sharp object, package it in a safe manner (fastened and/or wrapped within the original packaging) for return to the Evidence Unit.

### 7 Evidence examination – clothing

- 7.1 Follow the [Note taking – general guidelines](#) and [Evidence examination – general guidelines](#) when examining any item of clothing.
- 7.2 Complete the General Packaging Worksheet as the initial documentation of each item.
- 7.3 Complete the Clothing Description or General Item Examination Worksheet for each separate clothing item.
- 7.3.1 Describe the color or pattern of the item of clothing, fabric type (denim, corduroy, etc.), fabric make-up (cotton, polyester, etc., from label, if present), and size (if marked on item). If an item is submitted inside-out, record this information.
- 7.3.2 Spread out the item of clothing, looking carefully at the front, back, and inside for any possible evidentiary material.
- 7.3.3 Describe the general cleanliness of the item of clothing. Note any defined soiled areas (biological and/or non-biological) on the garment, for example, knees, buttocks, or cuffs. Note whether the garment appears freshly washed or not (for example, wet or damp).
- 7.3.4 Describe any defects to clothing, which may have evidentiary value. For example, torn or missing buttons, torn or cut areas, damaged areas, or burned areas should be described.
- 7.3.4.1 Fabric Defects should only be documented as "yes" when there are observed rips, tears, or other deliberate alterations to the garment compared to if it was new. The

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observation that an item is worn and/or has lint balls or pillings is distinct from fabric defects and may be put in the comments section of the entire exam notes and have "no" selected for Fabric Defects.

- 7.3.5 Note the presence of any suspected stab holes or bullet holes. Diagram the location, orientation, size, and shape of any holes. Do not overlook the possibility that more than one hole may be caused by a single stab or shot due to the folding of the fabric. When sampling a stain from the area of a suspected stab hole or bullet hole, **do not** cut through or otherwise disturb the hole. Take a sample away from the existing hole.
- 7.3.6 Carefully examine any pockets, inside and out. The preferred method is to gently pat the outside of the pocket to determine if there are any contents. Tweezers may be used to turn pockets inside out. **Caution is advised when placing the hand in a pocket. An unexpected sharp object could cause serious injury.** If any items (ex. money, a paper clip, drug paraphernalia) are discovered in the pockets of the evidence, or in the packaging with the submitted evidence in general, itemize the items (see section 2.3.1), document the presence of the item(s) in your examination notes, fill out an Evidence Discrepancy/Deficiency Form, and return the item(s) along with the evidence to the Evidence Unit.
- 7.3.6.1 If something of an **illegal nature** (such as drugs or their associated paraphernalia) is discovered to be present with the submitted evidence, you must inform the Customer Liaison AND the Evidence Unit that you found such items in with the submitted evidence. They will in turn alert the NYPD.
- 7.3.7 Carefully examine the waistband, lining, cuff area, and collar area. This may require turning an item inside out.
- 7.3.8 Shoes have many crevices, which could retain material of evidentiary value and therefore should be examined carefully. Look carefully in the groove between the sole and upper shoe. Shoes with tongues should be checked for blood, which may have fallen between the shoelaces.
- 7.3.8.1 Shoes may be dismantled as necessary for further examination. Always photograph or diagram the intact items before dismantling.
- 7.3.9 Document stains by diagrams, description, and/or photography. Note the location of the stain, size, heaviness (soaked into fabric, surface smear, etc.), and any directionality of the stain pattern. Each photograph must have a ruler visible in the frame, either a plain straight ruler or an x, y axis ruler.

## 8 Evidence examination – clothing (for skin cells)

- 8.1 Clothing items that are scheduled to be examined for the DNA of the individual who wore the item should be processed either using the scraping method or by swabbing depending on the

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substrate. Follow [Note taking – general guidelines](#) and [Evidence examination – general guidelines](#) when examining any item of clothing.

- 8.2 Complete the General Packaging Worksheet as the initial documentation of each item.
- 8.3 Complete the Clothing Description or General Item Examination Worksheet for each separate clothing item.
- 8.4 Follow steps in the [Evidence examination – clothing \(section 7\)](#), then continue below.
- 8.5 Perform Scrapings procedure as follows:
  - 8.5.1 **IMPORTANT:** Do not perform this procedure near an air conditioning unit. In addition to a new lab coat and new gloves, the analyst should wear a mask/face shield and hair guard. For this technique, you must put on gloves in the following manner; latex gloves, cut-resistant gloves, then latex gloves as the final layer.
  - 8.5.2 Make sure bench-top is covered with paper. Take another piece of bench paper and fold the edges on each of the four sides up to form a 1/2 to 3/4 inch high rim. Tape or staple the corners to maintain the raised edges. For small items the bench paper should be folded in half before doing this. This will serve as a collection device for the scrapings.
  - 8.5.3 Use a clean unused razorblade to vigorously scrape the inside of the item, paying special attention to friction areas such as the cuffs and the neckline. Samples collected from both cuffs are combined and submitted as one sample. Samples collected from the collar and cuff areas will be submitted as two separate samples. Do not scrape too hard or you will produce too much lint. Make sure to cover the complete surface, if possible and appropriate. **If the item also contains biological stains, it is important not to include these areas when scraping.**
    - 8.5.3.1 The best way of doing this is to fold each item symmetrically, lay it down flat in the collection bin, and scrape the surface. Re-fold and repeat until the complete inside has been scraped. This procedure will produce lint that contains the skin cells; consider this lint as a carrier for the cells.
  - 8.5.4 Collect the lint by brushing the fibers into one corner of the bench paper (use razorblade), use tweezers to transfer material into an extraction tube. If no fibers are visible, use the razorblade to scrape the bench paper surface into an extraction tube.
  - 8.5.5 The scrapings should be divided into two parts; one part goes to extraction. The remaining part is placed into an extraction tube and then packaged within an individual envelope, labeled, and returned to the original packaging.
- 8.6 Some items of clothing may need to be swabbed (e.g. latex gloves or fabrics that do not produce lint).

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- 8.6.1 For instances where the fabric type appears to be not scrapable (for example, spandex, rayon, polyester, etc.), or an attempt was made at scraping and nothing was produced, it is best for the analyst to use distilled water and a cotton swab. A portion of the swab should be cut and submitted for extraction, and the remainder of the swab should be retained with the item of evidence.
- 8.6.2 Latex gloves should be swabbed using 0.01% SDS and Touch DNA swabs. When examining gloves that are to be swabbed for the wearer, the “inside” and “outside” should be sampled separately. Although it often can’t be determined which is truly the inside and outside, the goal is to obtain a DNA profile of the wearer. Since one of the sides was in contact with the wearer and the other side was in contact with the world, two samples should increase the likelihood of meeting the goal of its examination.
- 8.7 When examining an item where the contact surface is unknown, one sample from each side may be collected and submitted for casework sample extraction.

### 9 Evidence examination – touched clothing (for skin cells)

- 9.1 Clothing items that are scheduled to be examined for DNA left behind by an assailant after a physical struggle should be processed using either a swabbing or scraping method, as required based on the material being examined. Follow the [Note taking – general guidelines](#) and [Evidence examination – general guidelines](#) when examining any item of clothing.
- 9.2 Complete the General Packaging Worksheet as the initial documentation of each item.
- 9.3 Complete the Clothing Description or General Item Examination Worksheet for each separate clothing item.
- 9.4 Follow steps in the [Evidence examination – clothing \(section 7\)](#) then continue below.
- 9.5 Perform Scrapings/Swabbing procedure as follows:
- 9.5.1 **IMPORTANT:** Do not perform this procedure near an air conditioning unit. In addition to a new lab coat and new gloves, the analyst should wear a mask/face shield and hair guard. For this technique, you must put on gloves in the following manner; latex gloves, cut-resistant gloves, then latex gloves as the final layer.
- 9.5.2 Make sure the bench-top is covered with paper. Take another piece of bench paper and fold the edges on each of the four sides up to form a 1/2 to 3/4 inch high rim. Tape the corners to maintain the raised edges. For small items the bench paper should be folded in half before doing this. This will serve as a collection device for the scrapings.
- 9.5.3 Determine the substrate of the item of clothing being examined and document the size of the area being sampled by diagrams, description, and/or photography.

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- 9.5.4 Based on the material, choose the best method to examine the item. Refer to the table below:

<i>Recommended method to use for various materials</i>	
Scraping	Swabbing
Cotton & Cotton mixture	Spandex
Polyester	Polyester
Wool	Rayon

- 9.5.5 For swabbing, swab the entire area using irradiated Touch DNA swabs prepared by the Quality Assurance team moistened with 0.01% SDS. Combine the swabs inside one extraction tube. Depending on the fabric and possible fraying of the Touch DNA swab, a cotton swab moistened with 0.01% SDS may be used. Depending on the case information and the size of the area (refer to clothing diagram), sampling should generally be within 6”x 6”.

- 9.5.6 For material requiring scraping, scrape the entire area lightly with a sterile blade and place the scrapings inside an extraction tube. Make sure to scrape the entire surface the assailant was purported to have had contact with. **If the item also contains biological stains, it is important not to include these areas when scraping or swabbing.**

- 9.5.7 Examples follow:

- For pants the victim was wearing while being groped/slapped/touched in the buttocks area, sample the left and right sides separately.
- For a shirt that was torn or ripped by the defendant, sample the entire area as one sample.
- For a shirt with blood that the defendant grabbed while attaching the victim, sample the area that was pulled on avoiding the biological stains.

- 9.5.8 After scraping the item, you may wipe the blade with an irradiated Touch DNA swab to recover as much skin cell evidence as possible. Place the swab inside the same tube as the scrapings. Both the scrapings and the Touch DNA swab will be extracted together as one sample.

## 10 Evidence examination – sexual assault kits – Female victim

- 10.1 Follow the [Note taking – general guidelines](#) and [Evidence examination – general guidelines](#) when examining any sexual assault kit. Follow the [Evidence examination – clothing \(section 7\)](#) when examining any clothing items packaged in a sexual assault kit.
- 10.2 Complete the General Packaging Worksheet as the initial documentation of each item.

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- 10.3 Complete the Sexual Offense Evidence Collection Kit Inventory Worksheet. Note that when completing the inventory and triaging samples, in cases of ambiguity or conflicting information (i.e. between the available information on SAK envelope check boxes, associated paperwork, and case contacts), a telephone call should be made to the liaison unit for additional information.
- 10.3.1 Ensure that the name of the victim corresponds to the name listed on the paperwork in the case record.
- 10.3.2 Indicate whether each kit component is sealed, unsealed, not submitted, or present but “not used” (this may require opening of the envelope). Consecutive item numbers are assigned to only those items that are present and used (e.g., 1.1, 1.2, 1.3.1-1.3.2 for swab and smear pairs).
- 10.3.3 **PM kits (all items packaged together):** Inventory kit. Label used envelopes with an item number (see above) and the FB number (label as 1.1, 1.2, etc.), analyst’s initials, and date of examination. **All the envelopes, whether used or unused** should contain the analyst’s initials and the identifying case number. All envelopes and any paperwork associated with the PM kit will be retained in the kit box. For PM SAKs use the Sexual Offense Evidence Collection Kit Inventory Worksheet.
- 10.3.3.1 For PM items that were not examined by those processing the case (e.g. scalp hair, fingernails), these should be marked as "(not examined)". This is analogous to SAK items that are inventoried but not examined or tested.
- 10.3.3.2 With PM SAKs, examine the orifice swabs first. If there are hand or neck swabs in the kit, open the envelope and if they are bloody, seal the items and consult with the exam supervisor.
- 10.3.4 **PM swabs (items packaged separately):** Complete the Packaging and Swab Examination Worksheet. These swabs should already have item numbers. Refer to the LIMS Evidence Manual.
- 10.3.5 **Vouchered kits:** Inventory kit. Label used envelopes with an item number (see above) and the FB number, analyst’s initials, and date of examination. **All the envelopes, whether used or unused** should contain the analyst’s initials and the identifying case number. See following for testing of the vouchered kit.
- 10.4 Testing of **underwear or small clothing items** contained within kit:
- 10.4.1 If **underwear or related items** (e.g., pantiliner) are in the kit, complete the Clothing Description or General Item Examination Worksheet. If stains are observed, underwear or related items must be documented by photography.

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- 10.4.2 Visually check underwear for any biological stains. Additionally, observe the underwear using an alternate light source. If any fluorescing areas are observed, circle for further testing.
- 10.4.2.1 If a whitish, yellowish, or fluorescing stain is observed on the underwear, document the stain with a stain number, photograph and description, and cut the stain for Zygem lysis. For multiple alleged assailants, it may be necessary to send multiple stains. Consult a supervisor.
- 10.4.2.1.1 If the case information suggests Male screening is not necessary (i.e. female victim and female suspect), then the samples can be cut for extraction intended for casework samples and not Zygem lysis.
- 10.4.2.2 If a pink to reddish-brown stain is observed on the underwear, document the stain with a stain number, photograph and description, and cut the stain for Zygem lysis. KM testing is not necessary.
- 10.4.2.3 For cases with a juvenile (under age 13) victim, all stains sent to Zygem lysis must also be tested for either PSA and amylase using the Seratec procedure, or by molecular serology testing (See 4.8.2). Consult the exam supervisor if needed.
- 10.4.3 At this point, be sure that any stains submitted for Zygem lysis are designated a stain number and are photographed.
- 10.4.4 If there are no possible biological stains on the item(s), a photograph is not necessary; write a short description of the item.
- 10.5 Testing of large clothing contained within kit:
- 10.5.1 If a large item(s) is received in a kit (i.e. shirt, pants), the examining analyst should itemize these items and wait for results before examining. Consult with the exam supervisor.
- 10.6 Testing of gauze within the kit:
- 10.6.1 Examination of gauze is similar to underwear whereby any possible biological stains will be submitted to Zygem lysis. Note the location from which the gauze was collected. If the location from which the gauze was taken is known, **this information must be included** on the SAK inventory. For cases with a juvenile (under age 13) victim, stains must also be tested for either PSA and amylase using the Seratec procedure, or by molecular serology testing (See 4.8.2). Consult the exam supervisor if needed.
- 10.6.2 If the case information suggests Male screening is not necessary (i.e. female victim and female suspect), then the samples can be cut for extraction intended for casework samples and not Zygem lysis.

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- 10.7 The **trace evidence envelope** is used by hospital personnel to **collect trace evidence from the victim's** body and/or the clothing. The victim disrobes over examination paper, and the examination paper is collected.
- 10.7.1 Since trace evidence examinations are not performed in the Department of Forensic Biology, there is generally no need to examine the contents. However, if the envelope appears to contain something other than trace evidence, or markings on the envelope indicate that something other than trace evidence is present, the envelope should be opened to confirm the contents and examination should proceed if needed. If the contents of the envelope are found to be the examination paper, no further examination is needed.
- 10.8 The **debris envelope** is used by hospital personnel to collect loose, obvious foreign material from the victim's body and/or the clothing.
- 10.8.1 If a debris envelope was used, note the location from which the debris was collected, or note that the location was not given. Since trace evidence examinations are not performed in the Department of Forensic Biology, there is generally no need to examine the contents. However, if the envelope appears to contain something other than debris, or markings on the envelope indicate that something other than debris is present, the envelope should be opened to confirm the contents and examination should proceed if needed.
- 10.9 The **dried secretions swabs** are used to collect possible biological fluids from areas other than the body cavities. In some instances, these swabs may be used to collect skin cell DNA from the assailant.
- 10.9.1 If dried secretions were taken, note the number of swabs and the location from which the secretions were collected, or note that the location was not given. Each swab must be individually labeled (1.4.1, 1.4.2). If the swabs are pink to reddish-brown in color, note the color of the swabs, however KM testing is not necessary.
- 10.9.2 Case information listed on the kit envelope may be helpful to evaluate the case. However, a checked box on the envelope without supporting information is not sufficient to deviate from Zygem lysis.
- 10.9.3 Make a cutting from each of the swabs present for the Zygem lysis procedure. As every case is different, please consult with a supervisor if there is something in the case description that suggests alternative testing is required, such as a casework sample extraction that would maximize the potential recovery of foreign DNA.
- 10.9.3.1 For example, if the victim may have been strangled, and neck swabs were submitted, then those swabs should be cut and consumed for extraction intended for casework samples and not Zygem lysis; consumption of a sample should be documented in the exam notes.



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- 10.9.4 The same would be true for cases where the information suggests licking or a swab from a bite mark, a portion of the swab can be submitted for extraction intended for casework samples and not Zygem lysis.
- 10.9.4.1 If the case information suggests Male screening is not necessary (i.e. female victim and female suspect), then the samples can be cut for extraction intended for casework samples and not Zygem lysis.
- 10.9.5 For cases with a juvenile (under age 13) victim, all dried secretions swabs that are submitted to Zygem lysis and/or extractions intended for casework samples must also be tested for either PSA and amylase using the Seratec procedure, or by molecular serology testing (See 4.8.2). For swabs that are not going to Zygem lysis, consult the exam supervisor if needed.
- 10.10 The **fingernail scrapings (or clippings)** are used to collect trace evidence from the fingernails.
- 10.10.1 Since trace evidence examinations are not performed in the Department of Forensic Biology, there is generally no need to examine the contents. However, requests are occasionally made to examine the fingernail scrapings; discuss with a supervisor before starting any examinations of fingernail evidence. If fingernail examination has been approved, refer to the Evidence examination – Fingernail Scrapings (or Clippings) section of this manual.
- 10.11 If a **liquid blood exemplar** is present, consult with a supervisor to make a bloodstain card. Fill out a blank stain card (FB number, victim's name, date, and initials), insert into a Kapak envelope and seal it. The FB number should be written on the Kapak and the analyst's initials and date of examination should be written across the seal. This may be used as an exemplar if no buccal specimen is present within the kit.
- 10.12 If a **dried blood control** is present, it is only used if there is no buccal specimen present in the kit. If it must be used, fill out a blank stain card (FB number, victim's name, date, and initials), attach the dried blood control to it, insert into a Kapak envelope and seal it. The FB number should be written on the Kapak and the analyst's initials and date of examination should be written across the seal.
- 10.13 The **buccal specimen** is used as the victim's exemplar.
- 10.13.1 If a buccal specimen is present, the analyst should place the swab(s) in a coin envelope labeled with the FB number, voucher number, item number, victim name, analyst's initials, and date of examination. The coin envelope should be placed in a Kapak envelope and heat sealed. The FB number should be written on the Kapak and the analyst's initials and date of examination should be written across the seal. The buccal should be transferred to a secure storage location.
- 10.13.2 If a bloodstain card has been submitted and retained, the buccal specimen does not need to be retained.

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- 10.14 The **pulled head hair and pulled pubic hair** are collected as exemplars for any future microscopic hair comparisons.
- 10.14.1 Since trace evidence examinations are not performed in the Department of Forensic Biology, there is generally no need to examine the contents. However, requests are occasionally made to use the pulled head hair for exemplar DNA testing; generally, hair DNA testing is not performed until hair comparisons have been made by the NYPD forensic laboratory.
- 10.15 The **pubic hair combings** are used to collect possible trace evidence from the pubic hair of the victim.
- 10.15.1 Since trace evidence examinations are not performed in the Department of Forensic Biology, there is generally no need to examine the contents.
- 10.16 The **“body cavity” swabs (oral, perianal, anal, vulvar, vaginal/penile, and cervical)** are used to collect possible biological fluids from those areas; the smears may be used for a sperm search, however this is not routinely done.
- 10.16.1 If the swabs are pink to reddish-brown in color, note the color of the swabs, however KM testing is not necessary.
- 10.16.2 In general, smears will not be stained to look for sperm and one of each swab type will be cut for Zygem lysis. If sperm search is needed, create slides from the swab cut for Zygem or the swab previously cut for STRs. Do not perform searches on submitted smears within the kit.
- 10.16.3 For cases with a juvenile (under age 13) victim, body cavity swabs must also be tested for serology either by the Serotec procedure or molecular serology testing (See 4.8.2).
- 10.16.3.1 For Serotec testing, all body cavity swabs must be tested for PSA. Vulvar, penile, scrotal and swabs marked as perianal (not perianal/anal) must also be tested for amylase.
- 10.16.4 If the case information suggests Male screening is not necessary (i.e. female victim and female suspect), then the samples can be cut for extraction intended for casework samples and not Zygem lysis.
- 10.16.5 Return all swabs and smears to their respective envelopes.
- 10.17 **Questionnaires, forms, and body diagram sheets** are intended for the use of the medical personnel. Any such paperwork found in the kit that is filled-out with handwritten information should be copied for retention with the case record—as a .pdf attachment in LIMS (as applicable); leave all originals in the kit. If present, these filled-out documents are considered administrative records and must be labeled with the Forensic Biology case number. No item number designation is needed if present.

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- 10.18 **Photographs and/or other paperwork** are not supposed to be included in a kit. If present, make a note of it; leave them in the kit. No item number is assigned if present.
- 10.19 After kit examination is complete, the kit is now ready to be closed. (see [10.20](#)) At the end of kit closing, each envelope within the kit should be sealed with evidence tape and returned to the kit. Seal the kit and return to a secure storage location.
- 10.20 Buccal specimen
- 10.20.1 If a buccal specimen (exemplar) is present and samples have been submitted for testing, after quant review, make a cutting for extraction
- 10.20.2 If no buccal specimen was present in the kit, retain Male negative body cavity swabs to be used as an exemplar. The oral swab is the preferable choice to be used as an exemplar in the absence of a true exemplar. If there are no Male negative body cavity swabs, it may be necessary at a later time for a supervisor to make a phone call to request one.
- 10.20.3 The exemplar should be placed in a secure storage location unless there is a bloodstain card retained.
- 10.21 If there is additional evidence, a supervisor will determine whether or not the evidence needs to be signed in and examined.
- 10.22 If the kit is negative for male DNA, and there is no other evidence to examine, the case is finished and should be submitted to Quality Assurance for reanalysis consideration only if underwear or other small items are present. If no underwear or small items are present, the case is ready to be written up.

## 11 Evidence Examination- sexual assault kits- Male victim

- 11.1 Follow the [Note taking – general guidelines](#) and [Evidence examination – general guidelines](#) when examining any sexual assault kit. Follow the [Evidence examination – clothing \(section 7\)](#) when examining any clothing items packaged in a sexual assault kit.
- 11.2 Complete the General Packaging Worksheet as the initial documentation of each item.
- 11.3 Complete the Sexual Offense Evidence Collection Kit Inventory Worksheet. Note that when completing the inventory and triaging samples, in cases of ambiguity or conflicting information (i.e. between the available information on SAK envelope check boxes, associated paperwork, and case contacts), a telephone call should be made to the liaison unit for additional information.
- 11.3.1 Ensure that the name of the victim corresponds to the name listed on the paperwork in the case record.

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- 11.3.2 Indicate whether each kit component is sealed, unsealed, not submitted, or present but “not used” (this may require opening of the envelope). Consecutive item numbers are assigned to only those items that are present and used (e.g., 1.1, 1.2, 1.3.1-1.3.2 for swab and smear pairs).
- 11.3.3 **PM kits (all items packaged together):** Inventory kit. Label used envelopes with an item number (see above) and the FB number (label as 1.1, 1.2, etc.), analyst’s initials, and date of examination. **All the envelopes, whether used or unused** should contain the analyst’s initials and the identifying case number. All envelopes and any paperwork associated with the PM kit will be retained in the kit box. For PM SAKs use the Sexual Offense Evidence Collection Kit Inventory Worksheet.
- 11.3.3.1 For PM items that were not examined by those processing the case (e.g., scalp hair, fingernails), these should be marked as "(not examined)". This is analogous to SAK items that are inventoried but not examined or tested.
- 11.3.3.2 With PM SAKs, examine the orifice swabs first. If there are hand or neck swabs in the kit, open the envelope and if they are bloody, seal the items and consult with the exam supervisor.
- 11.3.4 **PM swabs (items packaged separately):** Complete the Packaging and Swab Examination Worksheet. These swabs should already have item numbers. Refer to the LIMS Evidence Manual.
- 11.3.5 **Vouchered kits:** Inventory kit. Label used envelopes with an item number (see above) and the FB number, analyst’s initials, and date of examination. **All the envelopes, whether used or unused** should contain the analyst’s initials and the identifying case number. See following for testing of the vouchered kit.
- 11.4 Testing of **underwear or small clothing items** contained within kit:
- 11.4.1 **If underwear or related items** are in the kit, complete the Clothing Description or General Item Examination Worksheet. If stains are observed, underwear or related items must be documented by photography.
- 11.4.2 Visually check underwear for any biological stains. Additionally, observe the underwear using an alternate light source. If any fluorescing areas are observed, circle for further testing.
- 11.4.2.1 If a whitish, yellowish, or fluorescing stain is observed on the underwear, document the stain with a stain number, photograph and description. Once all stains have been located, choose a representative sampling of stains to cut for differential extraction. For multiple alleged assailants, it may be necessary to send multiple stains. Consult a supervisor.

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- 11.4.2.2 If a pink to reddish-brown stain is observed on the underwear, document the stain with a stain number, photograph and description, and cut the stain for differential extraction. KM testing is not necessary.
- 11.4.2.3 For cases with a juvenile (under age 13) victim, all stains sent to differential extraction must also be tested for either PSA and amylase using the Seratec procedure, or by molecular serology testing (See 4.8.2). Consult the exam supervisor if needed.
- 11.4.3 At this point, be sure that any stains submitted for extraction are designated a stain number, photographed and the notes indicate which stains were sent for extraction
- 11.4.4 If there are no possible biological stains on the item(s), a photograph is not necessary; write a short description of the item.
- 11.5 Testing of large clothing contained within kit:
- 11.5.1 If a large item(s) is received in a kit (i.e. shirt, pants), the examining analyst should itemize these items and wait for results before examining. Consult with the exam supervisor.
- 11.6 Testing of **gauze or tissue** within the kit:
- 11.6.1 Examination of gauze is similar to underwear whereby a representative selection of possible biological stains will be submitted to extraction. Document the stain with a stain number, photograph and description and cut the stain for differential extraction. Note the location from which the gauze was collected. If the location from which the gauze was taken is known, **this information must be included** on the SAK inventory. For cases with a juvenile (under age 13) victim, stains must also be tested for either PSA and amylase using the Seratec procedure, or by molecular serology testing (See 4.8.2).
- 11.7 The **trace evidence envelope** is used by hospital personnel to collect trace evidence from the victim's body and/or the clothing. The victim disrobes over examination paper, and the examination paper is collected.
- 11.7.1 Since trace evidence examinations are not performed in the Department of Forensic Biology, there is generally no need to e.2.1
- 11.7.2 examine the contents. However, if the envelope appears to contain something other than trace evidence, or markings on the envelope indicate that something other than trace evidence is present, the envelope should be opened to confirm the contents and examination should proceed if needed. If the contents of the envelope are found to be the examination paper, no further examination is needed.
- 11.8 The **debris envelope** is used by hospital personnel to collect loose, obvious foreign material from the victim's body and/or the clothing.

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- 11.8.1 If a debris envelope was used, note the location from which the debris was collected, or note that the location was not given. Since trace evidence examinations are not performed in the Department of Forensic Biology, there is generally no need to examine the contents. However, if the envelope appears to contain something other than debris or markings on the envelope indicate that something other than debris is present, the envelope should be opened to confirm the contents and examination should proceed if needed.
- 11.9 The **dried secretions swabs** are used to collect possible biological fluids from areas other than the body cavities. In some instances, these swabs may be used to collect skin cell DNA from the assailant.
- 11.9.1.1 If dried secretions were taken, note the number of swabs and the location from which the secretion were collected, or note that the location was not given. Each swab must be individually labeled (1.4.1, 1.4.2). If the swabs are pink to reddish-brown in color, note the color of the swabs, however KM testing is not necessary.
- 11.9.2 Case information listed on the kit envelope may be helpful to evaluate the case. However, a checked box on the envelope without supporting information is not sufficient to deviate from differential extraction.
- 11.9.3 Make a cutting from each of the swabs present for differential extraction. As every case is different, please consult with a supervisor if there is something in the case description that suggests alternative testing is required, such as a casework sample extraction).
- 11.9.3.1 For example, if the victim may have been strangled, and neck swabs were submitted, then those swabs should be cut and consumed for extraction intended for casework samples; consumption of a sample should be documented in the exam notes.
- 11.9.4 The same would be true for cases where the information suggests licking or a swab from a bite mark, a portion of the swab can be submitted for extraction intended for casework samples.
- 11.9.5 For cases with a juvenile (under age 13) victim, all dried secretions swabs that are submitted to differential extraction and/or extractions intended for casework samples must also be tested for either PSA and amylase using the Seratec procedure, or by molecular serology testing (See 4.8.2). For swabs that are not going to differential extraction, consult the exam supervisor if needed.
- 11.10 The **fingernail scrapings (or clippings)** are used to collect trace evidence from the fingernails.
- 11.10.1 Since trace evidence examinations are not performed in the Department of Forensic Biology, there is generally no need to examine the contents. However, requests are occasionally made to examine the fingernail scrapings; discuss with a supervisor before starting any examinations of fingernail evidence. If fingernail examination has been approved, refer to the Evidence examination – Fingernail Scrapings (or Clippings) section [15](#) of this manual.

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- 11.11 If a **liquid blood exemplar** is present, consult with a supervisor to make a bloodstain card. Fill out a blank stain card (FB number, victim's name, date, and initials), insert into a Kapak envelope and seal it. The FB number should be written on the Kapak and the analyst's initials and date of examination should be written across the seal. This may be used as an exemplar if no buccal specimen is present within the kit.
- 11.12 If a **dried blood control** is present, it is only used if there is no buccal specimen present in the kit. If it must be used, fill out a blank stain card (FB number, victim's name, date, and initials), attach the dried blood control to it, insert into a Kapak envelope and seal it. The FB number should be written on the Kapak and the analyst's initials and date of examination should be written across the seal.
- 11.13 The **buccal specimen** is used as the victim's exemplar.
- 11.13.1 If a buccal specimen is present, the analyst should make a cutting of the buccal specimen at the time of examination and submit for extraction. Following the cutting, the analyst should place the swab(s) in a coin envelope labeled with the FB number, voucher number, item number, victim name, analyst's initials, and date of examination. The coin envelope should be placed in a Kapak envelope and heat sealed. The FB number should be written on the Kapak and the analyst's initials and date of examination should be written across the seal. The buccal should be transferred to a storage location. If a bloodstain card has been submitted and retained, the buccal specimen does not need to be retained.
- 11.14 The **pulled head hair and pulled pubic hair** are collected as exemplars for any future microscopic hair comparisons.
- 11.14.1 Since trace evidence examinations are not performed in the Department of Forensic Biology, there is generally no need to examine the contents. However, requests are occasionally made to use the pulled head hair for exemplar DNA testing; generally, hair DNA testing is not performed until hair comparisons have been made by the NYPD forensic laboratory.
- 11.15 The **pubic hair combings** are used to collect possible trace evidence from the pubic hair of the victim.
- 11.15.1 Since trace evidence examinations are not performed in the Department of Forensic Biology, there is generally no need to examine the contents.
- 11.16 The **"body cavity" swabs (oral, perianal, anal, and penile)** are used to collect possible biological fluids from those areas. The smears may be used for a sperm search; however, this is not routinely done.
- 11.16.1 If the swabs are pink to reddish-brown in color, note the color of the swabs, however KM testing is not necessary.

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- 11.16.2 In general, smears will not be stained to look for sperm and one of each swab type will be cut for differential extraction. If sperm search is needed, create slides from the swab cut for differential extraction or the swab previously cut for STRs. Do not perform searches on submitted smears within the kit.
- 11.16.3 Cut all orifice swabs for automated differential extraction.
- 11.16.4 For cases with a juvenile (under age 13) victim, body cavity swabs must also be tested for serology either by the Seretec procedure or molecular serology testing (See 4.8.2).
- 11.16.4.1 For Seratec testing, all body cavity swabs must be tested for PSA. Vulvar, penile, scrotal and swabs marked as perianal (not perianal/anal) must also be tested for amylase.
- 11.16.5 Return all swabs and smears to their respective envelopes.
- 11.17 **Questionnaires, forms, and body diagram sheets** are intended for the use of the medical personnel. Any such paperwork found in the kit that is filled-out with handwritten information should be copied for retention with the case record—as a .pdf attachment in LIMS (as applicable); leave all originals in the kit. If present, these filled-out documents are considered administrative records and must be labeled with the Forensic Biology case number. No item number designation is needed if present.
- 11.18 **Photographs and/or other paperwork** are not supposed to be included in a kit. If present, make a note of it; leave them in the kit. No item number is assigned if present.
- 11.19 After kit examination is complete, the kit is now ready to be closed. At the end of kit closing, each envelope within the kit should be sealed with evidence tape and returned to the kit. Seal the kit and return to a secure storage location.
- 11.20 If there is additional evidence, a supervisor will determine whether or not the evidence needs to be signed in and examined.
- 11.21 If the kit is negative for foreign DNA and there is no other evidence to examine, the case is finished and is ready for write up.

## 12 Evidence examination – sexual assault kits for digital penetration- Female victim

- 12.1 Follow the [Note taking – general guidelines](#) and [Evidence examination – general guidelines](#) when examining any sexual assault kit. Follow the [Evidence examination – clothing \(section 7\)](#) when examining any clothing items packaged in a sexual assault kit.
- 12.2 Complete the General Packaging Worksheet as the initial documentation of each item.



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- 12.3 Complete the Sexual Offense Evidence Collection Kit Inventory Worksheet. Note that when completing the inventory and triaging samples, in cases of ambiguity or conflicting information (i.e. between the available information on SAK envelope check boxes, associated paperwork, and case contacts), a telephone call should be made to the liaison unit for additional information.
- 12.3.1 Ensure that the name of the victim corresponds to the name listed on the paperwork in the case record.
- 12.3.2 Indicate whether each kit component is sealed, unsealed, not submitted, or present but “not used” (this may require opening of the envelope). Consecutive item numbers are assigned to only those items that are present and used (e.g., 1.1, 1.2, 1.3.1-1.3.2 for swab and smear pairs).
- 12.3.3 Vouchered kits:** Inventory kit. Label used envelopes with an item number (see above) and the FB number, analyst’s initials, and date of examination. **All the envelopes, whether used or unused** should contain the analyst’s initials and the identifying case number. See following for testing of the vouchered kit.
- 12.4 Testing of **underwear or small clothing items** contained within kit:
- 12.4.1 If **underwear or related items** (e.g., pantiliner) are in the kit, complete the Clothing Description or General Item Examination Worksheet. If stains are observed, underwear or related items must be documented by photography. Visually check underwear for any biological stains. Additionally, observe the underwear using an alternate light source. If any fluorescing areas are observed, circle for further testing.
- 12.4.1.1 If a whitish, yellowish, or fluorescing stain is observed on the underwear that the examining analyst believes may be biological, document the stain with a stain number, photograph and description, and cut the stain for Zygem lysis. For multiple alleged assailants, it may be necessary to send multiple stains. Consult a supervisor.
- 12.4.1.2 If a pink to reddish-brown stain is observed on the underwear, document the stain with a stain number, photograph and description, and cut the stain for Zygem lysis. KM testing is not necessary.
- 12.4.1.3 For cases with a juvenile (under age 13) victim, all stains sent to Zygem lysis must also be tested for either PSA and amylase using the Seratec procedure, or by molecular serology testing (See 4.8.2). Consult the exam supervisor if needed.
- 12.4.2 At this point, be sure that any stains submitted for Zygem lysis are designated a stain number and are photographed.
- 12.4.3 If there are no possible biological stains on the item(s), a photograph is not necessary; write a short description of the item.

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### 12.5 Testing of large clothing contained within kit:

- 12.5.1 If a large item(s) is received in a kit (i.e. shirt, pants), the examining analyst should itemize these items and wait for results before examining. Consult with the exam supervisor.

### 12.6 Testing of **gauze** within the kit:

- 12.6.1 Examination of gauze is similar to underwear whereby any possible biological stains will be submitted to Zygem lysis. Note the location from which the gauze was collected. If the location from which the gauze was taken is known, **this information must be included on the SAK inventory. For cases with a juvenile (under age 13) victim, stains must also be tested for either PSA and amylase using the Seratec procedure, or by molecular serology testing (See 4.8.2).**

### 12.7 The **trace evidence envelope** is used by hospital personnel to collect trace evidence from the victim's body and/or the clothing. The victim disrobes over examination paper, and the examination paper is collected.

- 12.7.1 Since trace evidence examinations are not performed in the Department of Forensic Biology, there is generally no need to examine the contents. However, if the envelope appears to contain something other than trace evidence, or markings on the envelope indicate that something other than trace evidence is present, the envelope should be opened to confirm the contents and examination should proceed if needed. If the contents of the envelope are found to be the examination paper, no further examination is needed.

### 12.8 The **debris envelope** is used by hospital personnel to collect loose, obvious foreign material from the victim's body and/or the clothing.

- 12.8.1 If a debris envelope was used, note the location from which the debris was collected, or note that the location was not given. Since trace evidence examinations are not performed in the Department of Forensic Biology, there is generally no need to examine the contents. However, if the envelope appears to contain something other than debris, or markings on the envelope indicate that something other than debris is present, the envelope should be opened to confirm the contents and examination should proceed if needed.

### 12.9 The **dried secretions swabs** are used to collect possible biological fluids from areas other than the body cavities. In some instances, these swabs may be used to collect skin cell DNA from the assailant.

- 12.9.1 If dried secretions were taken, note the number of swabs and the location from which the secretions were collected, or note that the location was not given. Each swab must be individually labeled (1.4.1, 1.4.2). If the swabs are pink to reddish-brown in color, note the color of the swabs, however KM testing is not necessary.

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- 12.9.1.1 Case information listed on the kit envelope may be helpful to evaluate the case. However, a checked box on the envelope without supporting information is not sufficient to deviate from Zygem lysis.
- 12.9.2 Make a cutting from each of the swabs present for the appropriate extraction. As every case is different, please consult with a supervisor if there is something in the case description that suggests alternative testing is required, such as a casework sample extraction that would maximize the potential recovery of foreign DNA.
- 12.9.3 For example, if the victim may have been strangled, and neck swabs were submitted, then those swabs should be cut and consumed for extraction intended for casework samples and not Zygem lysis; consumption of a sample should be documented in the exam notes.
- 12.9.4 The same would be true for cases where the information suggests licking or a swab from a bite mark, a portion of the swab can be submitted for extraction intended for casework samples and not Zygem lysis.
- 12.9.5 For cases with a juvenile (under age 13) victim, all dried secretions swabs that are submitted to Zygem lysis and/or extractions intended for casework samples must also be tested for either PSA and amylase using the Seratec procedure, or by molecular serology testing (See 4.8.2). For swabs that are not going to Zygem lysis, consult the exam supervisor if needed.
- 12.10 The **fingernail scrapings (or clippings)** are used to collect trace evidence from the fingernails.
- 12.10.1 Since trace evidence examinations are not performed in the Department of Forensic Biology, there is generally no need to examine the contents. However, requests are occasionally made to examine the fingernail scrapings; discuss with a supervisor before starting any examinations of fingernail evidence. If fingernail examination has been approved, refer to Section 15 of this manual.
- 12.11 If a **liquid blood exemplar** is present, consult with a supervisor to make a bloodstain card. Fill out a blank stain card (FB number, victim's name, date, and initials), insert into a Kapak envelope and seal it. The FB number should be written on the Kapak and the analyst's initials and date of examination should be written across the seal. This may be used as an exemplar if no buccal specimen is present within the kit.
- 12.12 If a **dried blood control** is present, it is only used if there is no buccal specimen present in the kit. If it must be used, fill out a blank stain card (FB number, victim's name, date, and initials), attach the dried blood control to it, insert into a Kapak envelope and seal it. The FB number should be written on the Kapak and the analyst's initials and date of examination should be written across the seal.
- 12.13 The **buccal specimen** is used as the victim's exemplar.

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- 12.13.1 If a buccal specimen is present, the analyst should place the swab(s) in a coin envelope labeled with the FB number, voucher number, item number, victim name, analyst's initials, and date of examination. The coin envelope should be placed in a Kapak envelope and heat sealed. The FB number should be written on the Kapak and the analyst's initials and date of examination should be written across the seal. The buccal should be transferred to a storage location. If a bloodstain card has been submitted and retained, the buccal specimen does not need to be retained.
- 12.14 The **pulled head hair and pulled pubic hair** are collected as exemplars for any future microscopic hair comparisons.
- 12.14.1 Since trace evidence examinations are not performed in the Department of Forensic Biology, there is generally no need to examine the contents. However, requests are occasionally made to use the pulled head hair for exemplar DNA testing; generally, hair DNA testing is not performed until hair comparisons have been made by the NYPD forensic laboratory.
- 12.15 The **pubic hair combings** are used to collect possible trace evidence from the pubic hair of the victim.
- 12.15.1 Since trace evidence examinations are not performed in the Department of Forensic Biology, there is generally no need to examine the contents.
- 12.16 The **“body cavity” swabs (oral, perianal, anal, vulvar, vaginal/penile, and cervical)** are used to collect possible biological fluids from those areas. The smears may be used for a sperm search; however, this is not routinely done.
- 12.16.1 Visually check the swabs for the presence of biological fluids. If the swabs are pink to reddish-brown in color, note the color of the swabs, however KM testing is not necessary.
- 12.16.2 In general, smears will not be stained to look for sperm and one of each swab type will be cut for Zygem lysis. Should any of the swabs need to be recut for extraction, the entire swab should be cut and submitted for testing. If sperm search is needed, create slides from the swab cut for Zygem or the swab previously cut for STRs. Do not perform searches on submitted smears within the kit.
- 12.16.3 For cases with a juvenile (under age 13) victim, body cavity swabs must also be tested for serology either by the Seretec procedure or molecular serology testing (See 4.8.2).
- 12.16.3.1 For Seratec testing, all body cavity swabs must be tested for PSA. Vulvar, penile, scrotal and swabs marked as perianal (not perianal/anal) must also be tested for amylase.
- 12.16.4 Return all swabs and smears to their respective envelopes.

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- 12.17 **Questionnaires, forms, and body diagram sheets** are intended for the use of the medical personnel. Any such paperwork found in the kit that is filled-out with handwritten information should be copied for retention with the case record—as a .pdf attachment in LIMS (as applicable); leave all originals in the kit. If present, these filled-out documents are considered administrative records and must be labeled with the Forensic Biology case number. No item number designation is needed if present.
- 12.18 **Photographs and/or other paperwork** are not supposed to be included in a kit. If present, make a note of it; leave them in the kit. No item number is assigned if present.
- 12.19 After kit examination is complete, the kit is now ready to be closed. (see [12.20](#)) At the end of kit closing, each envelope within the kit should be sealed with evidence tape and returned to the kit. Seal the kit and return to a secure storage location.
- 12.20 Buccal specimen
- 12.20.1 If a buccal specimen (exemplar) is present and samples have been submitted for testing after quant review, make a cutting for extraction
- 12.20.2 If no buccal specimen was present in the kit, retain Male negative body cavity swabs to be used as an exemplar. The oral swab is the preferable choice to be used as an exemplar in the absence of a true exemplar. If there are no Male negative body cavity swabs, it may be necessary at a later time for a supervisor to make a phone call to request one.
- 12.20.3 The exemplar should be placed in a secure storage location unless there is a bloodstain card retained.
- 12.21 If there is additional evidence, a supervisor will determine whether or not the evidence needs to be signed in and examined.
- 12.22 If the kit is negative for male DNA, and there is no other evidence to examine, the case is finished and should be submitted to Quality Assurance for reanalysis consideration only if underwear or other small items are present. If no underwear or small items are present, the case is ready to be written up.

### 13 Evidence examination – Male suspect kits

- 13.1 In general, for male suspect kits all potential biological stains and swabs will be cut for the appropriate DNA extraction.
- 13.2 Although testing procedures are similar to sexual assault kit examination, the goal is to try to find victim DNA when examining any suspect kit. This should be kept in mind during examination of all items within the suspect kit.

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- 13.3 In addition to this manual, follow the [Note taking – general guidelines](#) and [Evidence examination – general guidelines](#) and the [Evidence examination – clothing \(section 7\)](#) when examining any clothing items.
- 13.4 Use the General Packaging Worksheet for initial documentation of each suspect kit.
- 13.5 Use the Suspect Evidence Collection Kit Inventory for further documentation. Note that when completing the inventory and triaging samples, in cases of ambiguity or conflicting information (i.e. between the available information on envelope check boxes, associated paperwork, and case contacts), a telephone call should be made to the liaison unit for additional information.
- 13.5.1 Note the name of the suspect and information about when and where the kit was collected. Ensure that the name of the suspect corresponds to the name listed on the paperwork in the case record.
- 13.5.2 **Inventory kit:** The LIMS will assign an item number to each used envelope. Affix a LIMS packaging label to each envelope. The analyst must mark all envelopes with their initials and date of examination.
- 13.5.2.1 As prompted by the Suspect Evidence Collection Kit Inventory, indicate whether each kit component is sealed, unsealed, not submitted, or present but “not used” (this may require opening of the envelope).
- 13.5.3 If a buccal specimen or other exemplar sample is contained within the kit, contact a supervisor immediately to create a suspect file. Suspect file creation is only necessary if an exemplar sample is present. See [Case Management](#) section of the manual.
- 13.6 After creation of a suspect file, the buccal swab is cut for extraction in accordance with laboratory guidelines.
- 13.7 Underwear or related items contained within kit:
- 13.7.1 Underwear or related items are in the kit, examine them using the Clothing Description Worksheet.
- 13.7.2 Visually check underwear for any biological stains. Then observe the underwear using an alternate light source. If any fluorescing areas are observed, circle for further testing.
- 13.7.2.1 If a potentially biological or fluorescing stain is observed on the underwear, document the stain with photography and stain number and cut for automated differential extraction.
- 13.7.2.2 If a pink to reddish-brown stain is observed on the underwear, document the stain with photography and stain number and cut for automated differential extraction. KM testing is not necessary.

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- 13.7.2.3 **Remember that the goal is to try to find victim DNA.** Therefore, non-fluorescing stains may need to be tested further. Stain location and the case scenario will determine what stains need further testing. As every case is different, consult with a supervisor as needed.
- 13.7.3 At this point, be sure that any stains submitted to extraction are documented, photographed, and designated a stain number/letter.
- 13.7.4 If there are no potential biological stains on the item(s), a photograph is not necessary; write a short description of the item using a Clothing Description Worksheet.
- 13.8 The **debris envelope** is used by hospital personnel to collect loose, obvious foreign material from the victim's body and/or the clothing.
- 13.8.1 If a debris envelope was used, note the location from which the debris was collected, or note that the location was not given. Trace evidence examinations are not performed in the Department of Forensic Biology. However, if the envelope appears to contain something other than debris, or markings on the envelope indicate that something other than debris is present, the envelope should be opened to confirm the contents and examination should proceed if needed.
- 13.9 The **dried secretions swabs** are used to collect possible biological fluids from areas other than the body cavities. This could include, for example, semen from the skin or saliva from bite marks. In some instances, these swabs may be used to collect skin cell DNA belonging to the victim.
- 13.9.1 If dried secretions were taken, note the number of swabs and the location from which the secretions were collected, or note that the location was not given. Each swab must be individually itemized.
- 13.9.2 If the swabs are pink to reddish-brown in color, note the color of the swabs, however KM testing is not necessary.
- 13.9.3 Depending on the case narrative, make a cutting from each of the swabs present for the appropriate DNA extraction.
- 13.9.4 As every case is different, please consult with a supervisor if there is something in the case description that suggests further testing is required.
- 13.10 The **fingernail scrapings (or clippings)** are used to collect trace evidence from the fingernails.
- 13.10.1 Trace evidence examinations are not performed in the Department of Forensic Biology. However, requests are occasionally made to examine the fingernail scrapings; discuss with a supervisor before starting any examinations of fingernail evidence. If fingernail

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examination has been approved, refer to the Evidence examination – Fingernail Scrapings (or Clippings) section [15](#) of this manual.

- 13.11 The **chest hair combings** are used to collect possible trace evidence from the chest hair of the suspect.
- 13.11.1 Trace evidence examinations are not performed in the Department of Forensic Biology.
- 13.12 The **oral swabs** are used to collect possible biological fluids from that area. The smears may be used for sperm search; however, this is not routinely done.
- 13.12.1 For **male** victims:
- 13.12.1.1 If the swabs are pink to reddish-brown in color, note the color of the swabs, however KM testing is not necessary.
- 13.12.1.2 Make a cutting of the swabs for automated differential extraction.
- 13.12.1.3 If sperm search is needed, create slides from the swab cut for differential extraction or the swab previously cut for STRs. Do not perform searches on submitted smears within the kit.
- 13.12.2 For **female** victims:
- 13.12.2.1 In most cases, oral swabs and smears should not be tested. If oral sodomy is alleged, cut for extraction. As every case is different, please consult with a supervisor if there is something in the case description that suggests further testing is required.
- 13.13 The **pulled head hair and pulled pubic hair** are collected as exemplars for any future microscopic hair comparisons.
- 13.13.1 Trace evidence examinations are not performed in the Department of Forensic Biology. However, requests are occasionally made to use the pulled head hair for exemplar DNA testing.
- 13.14 The **facial hair combings and pubic hair combings** are used to collect possible trace evidence from the facial hair and pubic hair of the suspect.
- 13.14.1 Trace evidence examinations are not performed in the Department of Forensic Biology.
- 13.15 The **penile and scrotal swabs** are used to collect possible biological fluids from those areas. The smears may be used for sperm search; however, this is not routinely done.
- 13.15.1 If the swabs are pink to reddish-brown in color, note the color, however KM testing is not necessary.

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- 13.15.2 Cut the swabs for automated differential extraction.
- 13.15.3 If sperm search is needed, create slides from the swab cut for differential extraction or the swab previously cut for STRs. Do not perform searches on submitted smears within the kit.
- 13.16 The **anal swabs** are used to collect possible biological fluids from that area. The smears may be used for sperm search; however, this is not routinely done.
- 13.16.1 For **male** victims:
- 13.16.1.1 If the swabs are pink to reddish-brown in color, note the color, however KM testing is not necessary.
- 13.16.1.2 Cut for automated differential extraction.
- 13.16.1.3 If sperm search is needed, create slides from the swab cut for differential extraction or the swab previously cut for STRs. Do not perform searches on submitted smears within the kit.
- 13.16.2 For **female** victims:
- 13.16.2.1 In most cases, anal swabs and smears should not be tested. As every case is different, please consult with a supervisor if there is something in the case description that suggests further testing is required.
- 13.17 The **buccal specimen** is used as the suspect's exemplar.
- 13.18 The **questionnaire, body diagram sheets, and instruction sheets** are intended for the use of the medical personnel. If present, make a copy only of the questionnaire and body diagram sheets for retention with the case record—as a physical copy in the case file and a .pdf attachment in LIMS (as applicable); leave all originals in the kit. No item number is assigned if present. Label each page with the suspect file number, voucher number, analyst's initials, and date of examination.
- 13.19 Photographs are not supposed to be included in a kit. If present, make a note of it, alert a supervisor, and leave them in the kit. Label with FB number, date of examination, and analyst's initials. No item number is assigned if present.
- 13.20 After cutting all pertinent items, return all swabs and smears to their respective envelopes.
- 13.20.1 Seal all kit envelopes with evidence tape and return to the kit.
- 13.20.2 Seal the kit and return to a secure storage location.

## 14 Evidence examination – condom

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- 14.1 Condoms are often submitted to the Forensic Biology laboratory for examination. Follow the [Note taking – general guidelines](#) and [Evidence examination – general guidelines](#) when examining a condom.
- 14.2 Use the General Packaging Worksheet for initial documentation of each item.
- 14.2.1 Describe the general condition of the condom (laid out flat, wadded up), color, and any trace evidence if present. If the condom was submitted “tied off,” document it as received then cut open for sampling.
- 14.2.2 If applicable, any stains **must** be documented by diagrams and/or photography. Note the location of the stain, size, heaviness (surface smear, etc.), and any directionality of the stain pattern. Each photograph must have a ruler visible in the frame, either a plain straight ruler or an x, y axis ruler.
- 14.2.3 Note whether fluids are present (liquid or dried). If the condom is found to be wet when opened, the item should be allowed to air dry after samples are taken. The item should not be heated or exposed to direct sunlight. If the item has become foul smelling, allow it to dry in the hood with the fan running.
- 14.2.4 Separately swab both the “inside” and “outside” of the condom, using no more than two swabs for each surface. Since it usually can’t be conclusively determined which surface is which, use quotes to describe the “inside” and “outside.”
- 14.2.4.1 Test both sets of swabs for the presence of blood, as needed.
- 14.2.4.2 Cut swabs for automated differential extraction. Consult a supervisor if needed.
- 14.2.5 Do not sample a condom by cutting a portion of the condom.

### 15 Evidence examination – Fingernail Scrapings (or Clippings)

- 15.1 Fingernail scrapings or clippings would be examined upon the request of the NYPD or law office and approval by a supervisor. Generally, information that indicates a struggle between the victim and the suspect must be provided in order to approve this testing.
- 15.2 Use the General Packaging Worksheet for initial documentation, where applicable. In many cases, this may have been completed during the original examination of the sexual assault kit or post-mortem kit.
- 15.3 MEs can submit sterile, single-use-per-victim clippers along with fingernails. If a nail clipper is received this does not need to be itemized, however it should be inspected for any nail clippings. Tip clippings out of the "collection system" of the clippers. This may require dismantling the clipper to conduct a thorough search. After examination, the clippers can then be discarded.

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- 15.4 Fingernail scrapings and clippings are to be sub-itemized by how they were received. Most often, they are initially separated by the right hand (containing scrapings or clippings or both) and the left hand (containing scrapings or clippings or both). For example, if the fingernails are item 1.4, they should be sub-itemized as items 1.4.1 (right hand) and 1.4.2 (left hand). Individual scraping dowels and fingernails must then be sub-itemized again before examination.
- 15.4.1 For example, if the fingernail packaging from a sexual assault kit contains all possible scrapings and clippings, the items should be listed as:
- 1.4 fingernail scrapings/clippings (itemized below)
    - 1.4.1 right hand fingernail scrapings/clippings (itemized below)
      - 1.4.1.1 right hand fingernail scrapings
      - 1.4.1.2 right hand fingernail clipping
      - 1.4.1.3 right hand fingernail clipping
      - 1.4.1.4 right hand fingernail clipping
      - 1.4.1.5 right hand fingernail clipping
      - 1.4.1.6 right hand fingernail clipping
    - 1.4.2 left hand fingernail scrapings/clippings (itemized below)
      - 1.4.1.1 left hand fingernail scrapings
      - 1.4.1.2 left hand fingernail clipping
      - 1.4.1.3 left hand fingernail clipping
      - 1.4.1.4 left hand fingernail clipping
      - 1.4.1.5 left hand fingernail clipping
      - 1.4.1.6 left hand fingernail clipping
- 15.5 In cases where the right and left hands are packaged separately, one level of sub-itemization will suffice.

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## 1.1.1 For example:

### 2 right hand fingernail scrapings/clippings (itemized below)

- 2.1 right hand fingernail scrapings
- 2.2 right hand fingernail clipping
- 2.3 right hand fingernail clipping
- 2.4 right hand fingernail clipping
- 2.5 right hand fingernail clipping
- 2.6 right hand fingernail clipping

### 3 right hand fingernail scrapings/clippings (itemized below)

- 3.1 right hand fingernail scrapings
- 3.2 right hand fingernail clipping
- 3.3 right hand fingernail clipping
- 3.4 right hand fingernail clipping
- 3.5 right hand fingernail clipping
- 3.6 right hand fingernail clipping

## 15.6 Fingernail scrapings

- 15.6.1 Complete a General Items Worksheet for the submitted fingernail scrapings. If packaged together, multiple scraping dowels can be examined at the same time (but sampled separately). If fingernail scrapings were received and previously documented in a sexual assault kit, you may need to edit the quantity and itemize the scraping dowels individually.
- 15.6.2 Cut a ~ $\frac{1}{4}$  inch piece from both ends of the individual dowel and place into one extraction tube (per dowel). Collect any debris that may have fallen off the dowel and place in an extraction tube.
- 15.6.3 Add the appropriate “\_FN” suffix to all collected samples and submit for robotic extraction.

## 15.7 Fingernail clippings

- 15.7.1 Complete a Nail Examination Worksheet for each item. If packaged together, multiple fingernails can be examined at the same time (but sampled separately). If broken, pieces of fingernails should be treated as separate samples (there may be more than 10 samples). However, if the pieces are very small they can be combined and itemized as one item. Generally, try to group small clippings so that no more than six separate samples are sub-itemized per hand. On the exam sheet for that item it should be documented that the nail is fragmented and not whole. Consult with a supervisor if needed.
- 15.7.2 Fingernails **must** be photographed. Fingernails should be grouped by hand for a photograph (do not take individual photos of each nail); photograph as described in the general guidelines of this manual.

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- 15.7.3 Examine the fingernails for any skin or debris of the victim or potential foreign donor. If the nail is too small it may be necessary to examine the nail under the stereoscope. Itemize any discovered skin or debris that can be separated from the fingernail as an additional sample and submit for casework sample extraction.
- 15.7.4 If any nails contain reddish-brown staining they should be KM tested, refer to specific instructions below. Sometimes this may not be possible due to the size and nature of staining.
- 15.7.4.1 If the staining is a distinct bloodstain, it should be collected and submitted as a separate sample than the nail sample. A portion of the swab used to collect the stain should be cut and submitted for casework sample extraction.
- 15.7.4.2 However if the staining covers the entire nail to the extent that there is no physical distinction between the nail sample and the possible bloodstain, then it is not necessary to remove the stain from the nail. Sample a portion of the bloodstain to submit for casework sample extraction. Return the stained nail(s) to the packaging.
- 15.7.4.3 If multiple nails are similarly covered in staining resembling blood, only one sample from one nail should be submitted for casework sample extraction. Return the remaining nails to the packaging; do not submit them for fingernail extraction.
- 15.7.5 Cut longer fingernails in half; large samples may hinder the extraction process. The nail should be cut under folded piece(s) of lint free wipe or under a weigh boat. Add the appropriate “\_FN” suffix to all collected samples and submit for fingernail extraction.
- 15.7.6 When submitting fingernails for extraction (postmortem or non-post mortem), the Evidence Item (fingernail) is “consumed”. For sexual assault kits and post-mortem sexual assault kits, the empty packaging can be returned to the kit. For non-sexual assault post-mortem fingernails, no package needs to be created in LIMS.

## 16 Evidence examination – non post-mortem exemplars

- 16.1 Follow the general [Note taking – general guidelines](#) and [Evidence examination – general guidelines](#) when examining any exemplar item.
- 16.2 True exemplars:
- 16.2.1 An exemplar must have documentation stating that it is in fact from the person named. A “true exemplar,” such as a blood sample or an oral swab, will include paperwork from the NYPD member who obtained the sample, paperwork from the NYPD (including a voucher and sometimes a signed consent form), or paperwork from the DAO.
- 16.2.2 Use the General Packaging Worksheet for initial documentation of each item.

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- 16.2.2.1 For a blood sample, follow the [bloodstain preparation](#) section of the Serology Manual.
- 16.2.2.1.1 Due to the nature of LIMS Paperless, bloodstain cards must have an item exam worksheet completed. Without the exam sheet, LIMS may encounter issues downstream when trying to pull batches into the case file.
- 16.2.2.1.2 Cut a portion of the dried bloodstain card for exemplar extraction, using the initials of the individual in the short sample name.
- 16.2.2.2 For an oral swab, document the sample using the General Packaging and Exemplar Examination Worksheets. Cut approximately  $\frac{1}{4}$  of the swab for exemplar extraction, using the initials of the individual in the short sample name.
- 16.2.2.2.1 For PowerPlex Fusion Direct amplification, cut approximately  $\frac{1}{2}$  of the cotton oral swab into a 1.5mL screw cap tube. If exemplar is an OmniSwab™, cut one “triangle.” Label tubes with input labels from LIMS.
- 16.2.2.2.2 If the oral swab is being submitted for Rapid testing, the cutting label should be placed at the bottom of the desiccator.
- 16.3 Abandonment Samples:
- 16.3.1 It is the policy of the Department of Forensic Biology to accept and test “abandonment samples”. It is our expectation that NYPD investigators will submit items with a reasonable probability of finding a single-source DNA profile from the suspect. Although processed similarly, the item must have been abandoned and are considered separate from a “true exemplar”; common examples include a cigarette butt tossed in the street, a coffee cup left behind after questioning, or a bottle the suspect was seen handling. It is not acceptable to test items taken directly from a suspect (e.g. handcuffs for the DNA of the person that these were last used on) or items of evidence collected from an unrelated incident (e.g., bloody clothes from a suspect who was a victim of an assault).
- 16.3.1.1 Use the General Packaging Worksheet for initial documentation of each item.
- 16.3.1.2 For a cigarette butt “abandonment sample,” document the sample using the Exemplar Examination Worksheet. Cut a piece of the filter and paper portion for casework sample extraction.
- 16.3.1.3 If an item (such as cup or bottle) is submitted, use the Exemplar Examination Worksheet for documentation. Use a cotton-tipped swab moistened with distilled water to swab the surface of contact. Briefly allow the swab to dry and then cut and consume the swab for casework sample extraction. Instances where a bottle is received, both the cap and the mouth of the bottle should be sampled together.

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- 16.3.1.4 For other items submitted as abandonment samples, cut or swab the item as appropriate. It may be necessary to consult with a supervisor to determine the best approach.
- 16.3.1.5 Remember to designate samples taken from abandonment samples using an appropriate LIMS suffix to indicate that it is not a true exemplar. For example: “\_AM” for bottles and cups or “\_CB” for cigarette butts. For short sample description, include the item type and initials of the person providing the abandonment sample. For example: “btlRB” for a bottle or “cigRB” for a cigarette butt.

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