

## DNA HIGH VOLUME SERVICE (HVS) GUIDE

### SUBMITTING EVIDENCE

The CFS HVS conducts high throughput DNA analysis in support of the identification of perpetrator(s) in the investigation of Break and Enters and Secondary DNA Designated Offences.

#### **CONSULTATIONS PRIOR TO SUBMISSION ARE NOT REQUIRED, BUT MAY BE MADE VIA EMAIL OR TELEPHONE TO:**

High Volume Scientific Advisor

[CFS.biology.highvolume@ontario.ca](mailto:CFS.biology.highvolume@ontario.ca)

647-329-1601

**To Submit:** Complete an online Case Submission at [www.cfsgov.ca](http://www.cfsgov.ca), including all relevant information such as:

- Names of individuals involved and their relationship to each other/scene/items.
- A list of items (individually itemized) being submitted. Descriptions should include where each item was found (e.g. at a scene / within a vehicle / on a person) and enough identifying information to allow for physical reconciliation of each item with the description upon receipt at the CFS.
- A brief description of the alleged events leading to, during, and subsequent to the occurrence. Case history should support that testing is both necessary and relevant for the identification of the perpetrator(s) within the context of the case.
- Sufficient information to support the proposition of multiple bleeders when testing of multiple blood swabs is requested.
- Reference to any pre-consultations with CFS staff (if any).
- Any known time pressures (e.g. court dates).

#### **Additional Considerations:**

- **ONLY ONE** item can be submitted per case without prior consultation.
- Follow-up submissions (up to a maximum of 3 items per case) will only be considered after the initial submission has been reported and only with prior approval from the CFS.
- Exceptions may be granted in extenuating case circumstances.

**NOTE: THE HVS DOES NOT PROVIDE ANY PRIORITY SERVICE. ANY SUCH REQUESTS (e.g. DUE TO PUBLIC SAFETY RISK) REQUIRE CONSULTATION PRIOR TO SUBMISSION.**

### QUALIFYING OFFENCES

The following Primary or Secondary Designated Offences (as per Section 487.04 of the Criminal Code of Canada) are accepted into the CFS DNA HVS line:

**Primary Designated Offences**

- 348(1)(d) Breaking and entering a dwelling house

**ALL Listed and Generic Secondary Designated Offences, EXCEPT**

- 98.1 Robbery to steal firearm
- 266 Assault
- 270 Assaulting a peace officer
- 280/281/282/283 Abduction offences
- All traffic offences involving direct impact of a person by a vehicle resulting in injury or death

**NOTE:** All other Primary Designated offences and the Secondary Designated offences listed above should be submitted to the Biology Violent Crime Service.

PLEASE REFER TO THE NATIONAL DNA DATABANK WEBSITE FOR THE COMPLETE LIST OF DESIGNATED OFFENCES.

Contact the High Volume Scientific Advisor for clarification or exceptions.

**ACCEPTANCE CRITERIA**

Submissions to the Biology section, including the HVS, must meet the National DNA Databank Criteria as per the DNA Identification Act (1998):

The crime scene index shall contain DNA profiles derived from bodily substances found:

- a) at any place where a designated offence was committed;
- b) on or within the body of the victim of a designated offence;
- c) on anything worn or carried by the victim at the time when a designated offence was committed; or
- d) on or within the body of any person or thing or at any place associated with the commission of a designated offence.

In addition, HVS submissions will be assessed to ensure that testing is both necessary and relevant in the context of the entire investigation.

**NOTE:** Evidence from non-designated offences will not be accepted for DNA testing without the concurrent submission of a reference sample from the suspect/accused/POI.

**ITEMS ACCEPTED**

**Three types of items are routinely accepted by the HVS:**

1. Swabs
2. Cigarette butts
3. Cut-outs from envelope flaps

**For all item types:**

- Items should be air-dried prior to submission.

- Package only one item per container (failure to do so will generally result in the return of the items untested).
- Each item must be individually listed and described.
- Package into paper bags, breathable plastic bags, swab boxes/tubes or envelopes. Minimal packaging is preferable.
- **Properly attach a numbered seal to each individual item.**

#### **Reasons why items may be declined:**

- Item does not meet the HVS guidelines for item type.
- Item has a low success rate/expectation of obtaining reliable results based on available information.
- Item is not the most relevant to address the identity of the perpetrator(s) within the context of the case.
- Individual is already associated with an item (e.g. “handler” analysis requested though item is located in individual’s possession).
- Limitations of the testing preclude examination.
- Item has undergone pre-testing by the submitting agency (e.g. fingerprinting/presumptive body fluid testing).
- Multiple blood swabs submitted with no clear evidence of more than one bleeder.
- Error(s) on the electronic submission form erroneously resulted in auto approval of an unsuitable item (in these instances, items are declined upon receipt at the CFS and returned as “Not Accepted”).

### **REFERENCE (COMPARISON) SAMPLES**

Samples from known individuals, collected with consent, by warrant or discarded, may be submitted at any point. Reference samples should not be submitted if the evidence has already been tested and has failed to yield any DNA profile(s) suitable for comparison.

#### **REFERENCE SAMPLES FROM COMPLAINANTS SHOULD BE SUBMITTED IF THEY HAVE HANDLED / CONTACTED EVIDENCE SAMPLES.**

Purpose of comparison samples:

- Required for comparison to DNA profiles generated in a case, to assist in excluding individuals as the source of unknown profiles.
- Ensures that DNA profiles which are attributable to complainants / deceased are not uploaded to the DNA Databank.

The accompanying **case synopsis** should include:

- Comparison sample type (e.g. consent, warrant or discard).
- A list of any other cases and items to which a comparison is requested and authorized, if outside of the current case. If none are listed in the case synopsis, comparisons will be confined to results generated in the case for which the comparison sample is submitted (even if the submission includes cross referenced cases).

Codes are required for all samples received from persons other than complainants, deceased individuals, or discard samples.

Suggested codes:

- CDW – Comparison DNA Warrant Sample
- CC – Consent Comparison
- ELS – Elimination Sample

### **STANDARD ITEM TYPES**

#### **1. Cigarette Butts (CB)**

- Can be submitted whole to the HVS but must have been smoked



**Note:** Plastic cigarillo tips or smoked cigars must be swabbed and submitted as SAS (see below).

#### **2. Cut-outs from Envelope Flaps (ENV)**

- Envelopes must have been previously sealed (self-sealing envelopes are not suitable for testing).
- Cut-out an approximately 2cm x 2cm section from the flap of the envelope using either a disposable blade or scissors that have been decontaminated with a ~1% bleach solution between items.



**NOTE:** Do not submit the whole item for sampling as the HVS does not return untested material. Since most postage stamps are self-adhesive, they are not accepted for DNA analysis.

#### **3. Swabs**

Swabs of a variety of item types may be submitted. When swabbing, regardless of the item type:

- Process each item using only one swab.
- Unless possible blood or saliva on an item is still wet, all swabs should be slightly moistened using 1 to 3 drops of sterile water prior to use.
- The wet swabs should be dried prior to packaging to prevent the occurrence of mold.
- Do not over saturate the swabs with water.
- Do not submit control swabs.

## SWAB TYPES

Seven general item types can be swabbed and submitted for analysis by the HVS:

- a) Swabs of suspected blood (BLS)
- b) Swabs of drink containers / drinking implements (DCS)
- c) Swabs of partially eaten food / eating utensils (FDS)
- d) Other 'saliva' swabs (SAS)
- e) Weapon swabs (WPS) - **Guns and Knives only**
- f) Airbag swabs (ABS)
- g) 'Other' swabs (OTH)

**Note:** As of October 1, 2019, swabs of handled (other than WPS) and/or worn items are not routinely accepted through the HVS given the limitations with respect to directly associating DNA on these item types to the commission of an offence.

### a) Blood Swabs (BLS)

- Testing for blood is the only form of body fluid identification regularly performed by the HVS. Suspected blood swabs are only carried forward to DNA analysis if they test positive for blood. (in rare cases, testing for other body fluids may be relevant to the specific allegations. In these cases, an exception to the standard process must be requested prior to submission).
- Submit only one blood swab per suspected bleeder and/or scene.
- If the suspected bloodstain to be swabbed is dry, use a moistened swab.
- If the suspected bloodstain to be swabbed is still wet, use a dry swab.
- Do not oversaturate the swab with blood; doing so can inhibit our ability to obtain a DNA profile.



- If two stained swabs are received in the same container, both will be returned untested. DO NOT TEST suspected bloodstains or swabs with presumptive tests such as Hematsix® or enhancement chemicals such as Luminol, BlueStar®, or LMG. These can inhibit our ability to obtain a DNA profile.

**NOTE:** Used syringes should routinely be submitted as OTH (see below) regardless of whether there is visible blood-like staining.

### b) Swabs of drink containers / drinking implements (DCS)

Swabs of drink containers should be limited to those drink containers and drinking implements that appear to have been used for their stated purpose within the time frame of the relevant offence. (e.g. A swab of a water bottle used to transfer a volatile liquid to an arson would not be considered a DCS). DCS includes swabs of:

- Drink containers
- Drinking straws



### c) Swabs of partially eaten food / eating utensils (FDS)

This category encompasses both swabs of partially eaten food items as well as swabs of utensils that would be put in the mouth during normal use (e.g. It would not include swabs of knives which are generally only handled with normal use).



### d) Other 'saliva' swabs (SAS)

Other 'saliva' swabs encompass all other items that may have come into contact with saliva and/or nasal secretions. This category includes, but is not limited to, swabs of:

- Lipsticks
- Drug pipes
- Suspected spit
- Plastic cigarillo tips
- Cigars



### e) Weapon Swabs (WPS)

Handled weapons must have been **brought to the scene** by perpetrators during the commission of an offence. Accepted items are limited to firearms and knives only (for converted firearms, please contact the HVS advisor prior to swabbing):

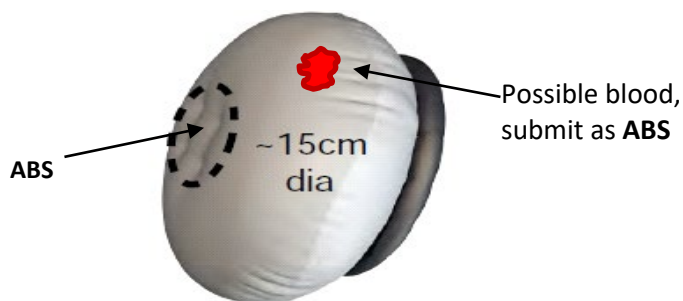


**Swabs of other items submitted using this code will generally be returned untested.**

#### f) Airbag Swabs (ABS)

In cases in which a vehicle's front airbags have deployed, a swab of each airbag deployed may be submitted. Use one swab per airbag and swab the interior ~15cm diameter area of the bag and any areas of visible 'mucous-like' staining.

If there is any visible blood-like staining, swab the potential blood staining separately and submit it as a separate item, also coded as (ABS).



#### Notes:

- DNA profiles from airbags generally cannot be used to 'position' occupants within a vehicle at the time of a crash (e.g. to determine whether someone was either the driver or a passenger).
- Swabs of side curtain airbags will not be accepted, unless there is visible blood-like staining.
- In the event that a vehicle directly impacts a pedestrian, your case will be assessed to determine whether it is more appropriate to accept item(s) through the Biology Violent Crime Service.

#### g) Other DNA Swabs (OTH)

- Swabs of used syringes are the only 'standard' item accepted in this category.
- In some cases, you may wish to request testing of an item that falls outside of those listed here. In these instances, it is recommended to contact the HVS by phone (647-329-1601) or email ([cfs.biology.highvolume@ontario.ca](mailto:cfs.biology.highvolume@ontario.ca)) prior to making the submission.

- These requests will immediately trigger the involvement of a scientific advisor in the online acceptance process. Please provide your case synopsis, a list of those items available for testing, which items you are making an exception request for, and how this analysis is both necessary and relevant to the identification of the perpetrator(s)

**NOTE:** Exceptions will not be routinely granted in the absence of extenuating circumstances.

### **LIMITATIONS OF DNA**

- A DNA profile is not necessarily from the last person to handle or wear an item.
- A DNA profile generated is not necessarily from the most frequent user or wearer of an item.
- An individual can handle or wear an item and not deposit sufficient DNA for detection.
- DNA depositions cannot be dated.

### **AFTER TESTING**

The following are routinely **discarded** after testing:

- Reminders of cigarette butts, envelope flaps, and swab sticks.
- Any “possible blood” swabs that test “negative” for blood.
- Control swabs submitted in the same packaging as a “possible blood” swab.
- Reference samples (including any remaining DNA) submitted concurrently with HVS evidence samples that fail to generate a DNA profile suitable for comparison (in these instances, the results of the reference sample testing will be retained in the case record but not interpreted/reported).
- Original packaging.
- Extracted DNA is **retained for 5 years** from the date of its submission, after which it is destroyed.

Packaging and/or any remaining item may be retained when:

- Packaging is found to be compromised in a manner that affects the integrity of the sample.
- Potential for contamination is noted.

### **FINAL REMINDERS**

- Do NOT use presumptive tests such as Hemastix or Luminol on stains; they may interfere with our ability to obtain a DNA profile.
- Swab for DNA submission before fingerprinting and/or test firing.
- Swab and submit possible blood on any item separately.
- All wet swabs should be air dried prior to packaging.
- Blood identification on swabs is the only body fluid testing performed on HVS submissions.
- Incidental material (e.g. possible hairs) will not be noted, tested or returned.



- If identification of semen or saliva may be critical to an investigation, consult with the HVS Unit prior to submission.
- Repeat analysis of the same item is not offered.
- The HVS does not include the interpretation of complex mixtures.
- Priority analysis is not offered through the HVS.