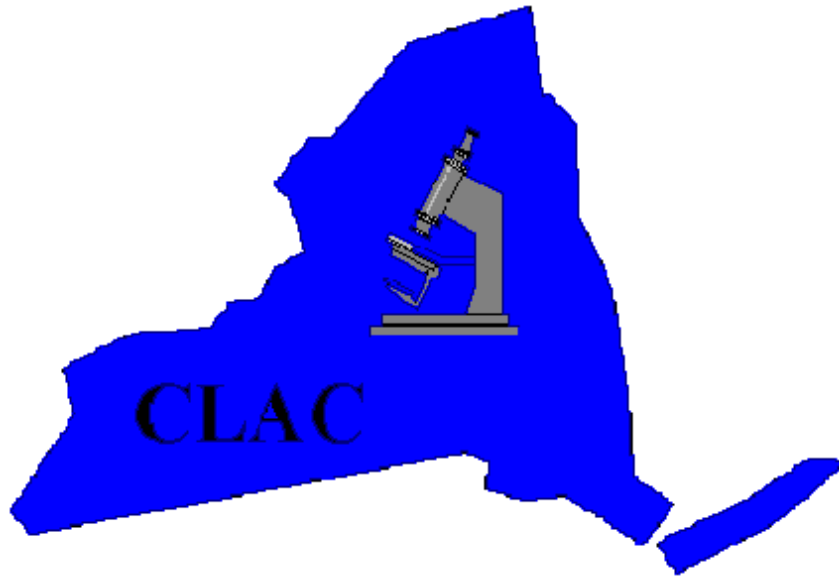


# **NYCLAC Report Standardization Project**



**BioTWG  
Crime Scene TWG  
DE TWG  
Drug TWG  
TWGfire**

**Firearms TWG  
Latent TWG  
QD TWG  
Tox TWG  
Trace TWG**

**July 2015**

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# NEW YORK STATE CRIME LABORATORY ADVISORY COMMITTEE

March 10, 2014

RE: NYS Report Standardization Project



## REPRESENTING:

Division of Criminal Justice Services

Drug Enforcement Administration  
Northeast Regional Laboratory

Erie County  
Central Police Forensic Laboratory  
Medical Examiner's Forensic Toxicology Lab

Monroe County  
Public Safety Laboratory  
Medical Examiner's Toxicology Laboratory

Nassau County  
Medical Examiner's Toxicology Lab  
Medical Examiner's Genetics DNA Lab

N.Y.C. Medical Examiner's Office  
Department of Forensic Biology  
Forensic Toxicology Laboratory

New York City Police Department  
Police Laboratory

New York State Office of  
Fire Prevention and Control

New York State Police  
Crime Laboratories

Niagara County Sheriff's Department  
Forensic Laboratory

Onondaga County  
Center for Forensic Sciences-Laboratories  
Health Department Forensic Toxicology Lab

Suffolk County  
Crime Laboratory  
Medical Examiner's Toxicology Lab

Westchester County  
Dept. Public Safety Crime Lab  
Dept. of Laboratories and Research-  
Division of Forensic Science  
Division of Forensic Toxicology

Yonkers Police Department  
Forensic Science Laboratory

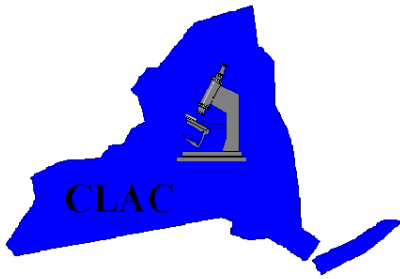
There are 19 accredited publically funded crime laboratories in the State, now that all four laboratories that comprise the New York State Police system are considered one laboratory. These laboratories are run by state, county and municipal authorities and serve a diverse host of agencies. There is also a significant difference in both size and case volume of the laboratories with the smallest laboratory in the state staffed by three analysts and the largest by 350. While both the variety and diversity of these conditions does a good job of mimicking the conditions nationwide, it has also posed significant, but not insurmountable report standardization challenges which have taken time to overcome.

Over the course of this project there have been many productive discussions about what report standardization actually means and how NYCLAC and the state's Technical Working Groups (TWGs) can improve the reports that are issued in the state of New York. In our view, the laboratory report serves as an essential tool for the criminal justice system to understand the value of the evidence that was examined in our laboratories. However, we do not feel that standardization means that all reports will look the same, but that core aspects of the content of the reports should be standardized throughout the state within each discipline or category of testing.

We also do not believe that a laboratory report will replace the need for discovery. Forensic laboratory reports are not meant to duplicate the case file, but to summarize the work performed in a manner that can be understood by the members of the criminal justice community, yet that still remain scientifically accurate. We feel including additional wording and complexity can lead to misunderstanding and misinterpretation among our users. Duplication of the case file within the report also poses a significant risk in that it will take considerably longer to incorporate this information into the report and to ensure that it is properly reviewed, both technically and administratively. The end result is that each case will take longer to produce, further straining already overworked crime laboratories for no appreciable gain.

With this framework, the TWGs were charged with three overarching tasks:

- 1) Identify standard components that must be present in a report for a given discipline or category of testing.
- 2) Develop standardized reporting language, where feasible, and identify times when qualifiers and/or disclaimers are necessary.
- 3) Develop standardized definitions that will either be included in the report or archived on a website that will be referenced in the report.



The following attachments are the work product of the TWGs with input from NYCLAC members. Since New York is the first state to undertake report standardization, this is not the end of the project, but just the beginning of a continuum. These will be living documents that are reviewed and modified as problems are identified and revised as new testing protocols are implemented and incorporated. Historical records will be archived on a website hosted by the Division of Criminal Justice Services (DCJS).

It is our intention to institute report standardization through voluntary compliance of the participating laboratories throughout the state. We estimate that it will take approximately 6-9 months for laboratories to make the necessary changes to their manuals and report templates to account for these changes. To ensure that these guidelines do not preclude accurate reporting, if a laboratory feels that they have a situation which was not accounted for, they will be able to deviate from the reporting guidelines. Deviations and the reasons for them will be regularly reviewed by the TWGs and NYCLAC. Deviations should be rare events. Should the deviations become a frequent occurrence, the TWGs and NYCLAC will evaluate if the rules require change.

Training will also be necessary for members of the Criminal Justice Community. DCJS has offered to facilitate web based training to allow all end users to understand the changes that will be taking place in reports throughout the state. Through this mechanism it should be possible to reach a large number of users in a fairly short period of time.

As previously stated, while this project took significant effort on the part of the TWGs and everyone involved, it is not considered an end point but rather a starting point that we anticipate will continue to evolve. The laboratories believe it is a step forward towards uniformity and standardization of laboratory reports which will better serve to improve the practice of forensic science in New York State.

New York State Crime Laboratory Advisory Committee  
(NYCLAC)

# **Forensic Biology Report Standardization Materials**

## **Project Area I: Standardized Report Components**

1. Unique case identifier on each page of report (such as lab number)
2. Title of the report (such as “report of laboratory analysis”)
3. Identification of the laboratory
4. Submitting Agency Information or at a minimum submitting agency
5. List or explanation of items examined
6. General indication of methodology utilized
7. Results/conclusions
8. Date report issued
9. Signature and title of examiner (or electronic equivalent)
10. Pagination of the report (example page 1 of 2 etc)
11. Statement regarding the report does not constitute the entire case file or equivalent
12. Statement that definitions of terms used in the report can be located at the DCJS website and if applicable on the laboratory website or attached to report

## **Additional Discipline Specific Report Components:**

13. Locus or amplification system indicated
14. A quantitative or qualitative interpretative statement. Calculations are performed and reported on evidentiary DNA profiles that are established as relevant in the context of the case to aid in the assessment of the significance of inclusion.
15. Disposition of evidence

## **Project Area II: Standardized Report Language/Statements**

### **Body Fluid Testing**

#### **a) Positive**

All body fluid testing results (with the exception of sperm search and P30) will be reported as “Presumptive,” such as “Presumptive testing for blood was positive.” Positive tests for semen are reported by identifying the component of semen that was tested for. A positive sperm search will be reported as “Spermatozoa identified.” A positive P30 test will be reported as “Prostate Specific Antigen was detected.” If multiple tests for semen are done, all results should be in the report.

#### **b) Negative**

Negative results for all body fluids will be reported using the words “Not detected,” such as “No blood detected” or “Blood not detected.” A negative sperm search will be reported as “No spermatozoa identified.” A negative P30 test will be reported as “Prostate Specific Antigen was not detected.” A negative Acid Phosphatase test will be reported using the word “Presumptive,” such as “Presumptive testing for semen was negative.” If multiple tests for semen are done, and some of the results are negative, all results should be in the report.

### **DNA Analysis**

- If a negative quantitation result is obtained and no further analysis is conducted, the phrase “No DNA detected” will be used.
- If a positive but very low quantitation result is obtained and no further analysis is conducted, the phrase “Insufficient DNA” will be used.
- If a sample is amplified and there are no DNA results on the electropherogram, the phrase “No DNA profile/result detected” will be used.
- If a sample is amplified and the DNA results are inconclusive, the phrase “Not suitable for comparison” will be used. The report must include a reason why the sample is considered inconclusive.
- When a single-source DNA profile from an evidence (questioned) sample is the same as a known sample, the word to be used is “Match.” The word “Match” will also be used if the evidence profile is a single-source major component of a mixture or is a single-source profile that is deduced from a mixture.

- If an individual is included as a possible donor to a mixture DNA profile from an evidence sample, it will be reported as either “Cannot be excluded” or “Can be included.”<sup>1</sup>
- If an individual is excluded as a donor to a single-source evidence sample, the phrase “Does not match” will be used.
- If an individual is excluded as a possible donor to a mixture DNA profile from an evidence sample, it will be reported as “Excluded as a possible donor/contributor.”

## Kinship Analysis

### a) Inclusion

“X can be included/cannot be excluded as a relative of Y.”

*The statement will be specific as to which relative, such as parent, sibling, aunt, uncle, etc.*

### b) Exclusion

“X is excluded as a relative of Y.”

## Identity Statement

In order to utilize an identity statement, the following must be met:

- There must be results for at least 9 loci
- Conditional probability for the sample must be determined
- The conditional probability must be less than 1/1000 x the relevant population (as determined by the lab)

When these conditions have been met, the wording to be used is “X is the source.”

## Y-STR/Mitochondrial DNA

The following statements should be included with match statements for Y-STR and Mitochondrial DNA:

- Y-STR: “or a paternal relative”
- Mitochondrial DNA: “or a maternal relative”

<sup>1</sup> There was disagreement among the laboratory directors. Some wanted to go with “cannot be excluded” which is what is recommended by SWGDAM (1/10) while others felt the term was confusing and difficult to understand and preferred “can be included.” The proponents of “cannot be excluded” also felt that “is included” could be misinterpreted as an identity statement. Under the current proposal, laboratories can use either statement.



## **Project Area III: Standardized Terms & Definitions**

### **Body Fluid Testing**

#### **Presumptive**

A non-confirmatory test used for detecting the possible presence of biological fluids.

#### **Prostate Specific Antigen (PSA)**

A protein (also known as P30) produced by the prostate gland and found in semen. PSA concentration in semen is typically in levels far in excess of those found in other fluids.

#### **Spermatozoa**

The male reproductive cell that can be found in semen.

### **DNA Analysis**

#### **Allele**

An alternative form of DNA markers. Alleles are found in specific areas or locations of the DNA called Loci (Singular: Locus).

#### **Cannot Be Excluded / Is Included**

An individual can be a donor to a DNA mixture profile.

#### **Combined DNA Index System (CODIS)**

A collection of Local, State and National DNA databases.

#### **Differential Extraction**

A procedure in which sperm cells are separated from all other cells in a sample, resulting in a **Sperm Fraction** which is enriched for sperm DNA and a **Non-Sperm/Epithelial Fraction** which contains DNA from other cell types.

#### **Deoxyribonucleic Acid (DNA)**

The inherited genetic material found in most cells.

#### **DNA Amplification Kit**

A commercial product used to generate a DNA profile.

**Excluded**

An individual cannot be a donor to a DNA profile.

**Inconclusive / Not Suitable for Comparison**

An interpretation or conclusion in which the DNA typing results are insufficient or too complex, as defined by the laboratory, for comparison purposes.

**Major**

Alleles that are present in a higher proportion in a DNA mixture profile.

**Match**

The alleles detected in a questioned/evidence sample are the same as the alleles detected in another sample.

**Minor**

Alleles that are present in a lower proportion in a DNA mixture profile.

**Mixture**

A DNA profile that has more than one donor.

**Polymerase Chain Reaction (PCR)**

A technique that copies specific areas of DNA.

**Probability**

A measure or estimation of how likely it is that something would occur.

**Profile**

A set of alleles detected in a sample during DNA analysis.

**Short Tandem Repeat (STR)**

DNA loci with a variable number of short repeating segments.

# **Crime Scene Report Standardization Materials**

## **Project Area I: Standardized Report Components**

1. Unique case identifier on each page of report (such as lab number)
2. Title of the report (such as “report of laboratory analysis”)
3. Identification of the laboratory
4. Requesting Agency Info or at a minimum requesting agency
5. List or explanation of items examined
6. General indication of methodology utilized
7. Results/conclusions
8. Date report issued
9. Signature and title of examiner (or electronic equivalent)
10. Pagination of the report (example page 1 of 2 etc.)
11. Statement regarding the report does not constitute the entire case file or equivalent
12. Statement that definitions of terms used in the report can be located at the DCJS website and if applicable on the laboratory website or attached to report

## **Project Area II: Standardized Report Language/Statements**

### **Processing**

#### **Positive**

The following items indicated a positive reaction for the presumptive presence of blood/semen.

#### **Negative**

The following items indicated a negative reaction for the presumptive presence of blood/semen.

#### **Inconclusive**

The following items were inconclusive for the presumptive presence of blood/semen (state reason).

### **Reconstruction**

#### **Results**

Specific observations defined and any sources of information used to draw conclusions.

#### **Conclusions**

Statements made based on observations or other information provided.

## **Project Area III: Standardized Terms & Definitions**

### **ABFO Scales (American Board of Forensic Odontology scales)**

An L-shaped piece of plastic used in photography that is marked with circles, black and white bars, and 18-percent gray bars to assist in distortion compensation and provide exposure determination. For measurement, the plastic piece is marked in millimeters.[1]

### **Accompanying Drop**

A small blood drop produced as a by-product of drop formation.[2]

### **Altered Stain**

A bloodstain with characteristics that indicate a physical change has occurred.[2]

### **Alternate Light Source**

A high powered light source that can control specific wavelengths and/or wavelength ranges of light, to be used for the visualization/localization of possible testing areas.

### **Angle of Impact**

The acute angle (alpha), relative to the plane of a target, at which a blood drop strikes the target.[2]

### **Area of Convergence**

The area containing the intersections generated by lines drawn through the long axes of individual stains that indicates in two dimensions the location of the blood source.[2]

### **Area of Origin**

The three-dimensional location from which spatter originated.[2]

### **Backspatter Pattern**

A bloodstain pattern resulting from blood drops that traveled in the opposite direction of the external force applied; associated with an entrance wound created by a projectile.[2]

### **Biohazard Bag**

A container for materials that have been exposed to blood or other biological fluids and have the potential to be contaminated with hepatitis, AIDS, or other viruses.[1]

## **Biological Fluids**

Fluids that have human or animal origin, most commonly encountered at crime scenes (e.g., blood, mucus, perspiration, saliva, semen, vaginal fluid, urine).[1]

## **Blood Clot**

A gelatinous mass formed by a complex mechanism involving red blood cells, fibrinogen, platelets, and other clotting factors.[2]

## **Bloodstain**

A deposit of blood on a surface.[2]

## **Bloodstain Pattern**

A grouping or distribution of bloodstains that indicates through regular or repetitive form, order, or arrangement the manner in which the pattern was deposited.[2]

## **Bloodstain Pattern Analysis**

The analysis of the distribution patterns/stains at a scene resulting from the shedding of blood. Assessment of their size, shape, and distribution can help provide information as to pattern identity, as well as the possible mechanism of their formation. A useful investigative/reconstructive aid that is often incorporated into crime scene reconstructions.

## **Bubble Ring**

An outline within a bloodstain resulting from air in the blood.[2]

## **Cast / Casting**

A collection procedure often utilized with impression evidence (i.e., footwear). It provides a 3-dimensional real image representation of the impression.

## **Cast-off Pattern**

A bloodstain pattern resulting from blood drops released from an object due to its motion.[2]

## **Cessation Cast-off Pattern**

A bloodstain pattern resulting from blood drops released from an object due to its rapid deceleration.[2]

## **Chemical Enhancement**

The use of chemicals that react with specific types of evidence (e.g., blood, semen, lead, fingerprints) in order to aid in the detection and/or documentation of evidence that may be difficult to see.[1]

## Chemiluminescence

The emission of light (luminescence), as the result of a chemical reaction.

## Collection / Preservation

The process of securing and protecting those items documented/obtained from the crime scene. Often these methods are evidence specific, with certain methods/requirements to ensure optimal safeguarding of the item(s) in question.

## Comparison Samples

A generic term used to describe physical material/evidence discovered at crime scenes that may be compared with samples from persons, tools, and physical locations. Comparison samples may be from either an **unknown/questioned** or a **known** source.[1]

Samples whose source is **unknown/questioned** are of three basic types:

1. Recovered crime scene samples whose source is in question (e.g., evidence left by suspects, victims).
2. Questioned evidence that may have been transferred to an offender during the commission of the crime and taken away by him or her. Such questioned evidence can be compared with evidence of a known source and can thereby be associated/linked to a person/vehicle/tool of a crime.
3. Evidence of an unknown/questioned source recovered from several crime scenes may also be used to associate multiple offenses that were committed by the same person and/or with the same tool or weapon.

Samples whose source is **known** are of three basic types:

1. A **standard/reference** sample is material of a verifiable/documented source which, when compared with evidence of an unknown source, shows an association or linkage between an offender, crime scene, and/or victim (e.g., a carpet cutting taken from a location suspected as the point of transfer for comparison with the fibers recovered from the suspect's shoes, a sample of paint removed from a suspect vehicle to be compared with paint found on a victim's vehicle following an accident, or a sample of the suspect's and/or victim's blood submitted for comparison with a bloodstained shirt recovered as evidence).
2. A **control/blank** sample is material of a known source that presumably was uncontaminated during the commission of the crime (e.g., a sample to be used in laboratory testing to ensure that the surface on which the sample is deposited does not interfere with testing. For example, when a bloodstain is collected from a carpet, a segment of unstained carpet must be collected for use as a blank or elimination sample).



3. An **elimination** sample is one of known source taken from a person who had lawful access to the scene (e.g., fingerprints from occupants, tire tread impressions from police vehicles, footwear impressions from emergency medical personnel) to be used for comparison with evidence of the same type.

**Contamination**

The unwanted transfer of material from another source to a piece of physical evidence.[1]

**Control / Blank Sample**

See comparison samples.

**Crime Scene**

Any location(s)/area(s) determined to have been associated with the commission of a crime.

**Crime Scene Processing**

The identification, documentation, collection, and/or interpretation of evidence/data at a crime scene.

**Crime Scene Reconstruction**

A process incorporating the data/information associated with a case in an attempt to provide a description/picture of the event(s) that transpired. The material utilized can be in the form crime scene observations, measurements, results of analyses, autopsy reports, police reports, trajectory analysis, bloodstain pattern analysis, etc.

**Directionality**

The characteristic of a bloodstain that indicates the direction blood was moving at the time of deposition.[2]

**Directional Angle**

The angle (gamma) between the long axis of a spatter stain and a defined reference line on the target.[2]

**Documentation**

The recording of information/data at crime scenes. Forms of documentation may include, but are not limited to, notes, photography, video, sketches, measurements, analysis/testing results, etc.

**Drip Pattern**

A bloodstain pattern resulting from a liquid that dripped into another liquid, at least one of which was blood.[2]

**Drip Stain**

A bloodstain resulting from a falling drop that formed due to gravity.[2]

**Drip Trail**

A bloodstain pattern resulting from the movement of a source of drip stains between two points.[2]

**Edge Characteristic**

A physical feature of the periphery of a bloodstain.[2]

**Elimination Sample**

See comparison samples.[1]

**Enhancement**

Treatment processes that can bring out additional detail(s) in the evidence. Often utilized with forms of impression evidence such as footwear.

**Examination / Comparison Quality Photographs**

These are images captured in a manner that allows for their use for comparison/measurement purposes.

**Expiration Pattern**

A bloodstain pattern resulting from blood forced by airflow out of the nose, mouth, or a wound.[2]

**Flow Pattern**

A bloodstain pattern resulting from the movement of a volume of blood on a surface due to gravity or movement of the target.[2]

**Fluoresce**

To produce, undergo, or exhibit fluorescence.

**Forward Spatter Pattern**

A bloodstain pattern resulting from blood drops that traveled in the same direction as the impact force.[2]

**Gelatin Lifts**

Adhesive pads with a clear plastic sheet cover. Used in the collection of trace/impression evidence. The collected item(s) are placed onto the adhesive sheet, securing them to the pad.

**Impact Pattern**

A bloodstain pattern resulting from an object striking liquid blood.[2]

**Impression Evidence**

Objects or materials that have retained the characteristics of other objects that have been physically pressed against them.[1]

**Insect Stain**

A bloodstain resulting from insect activity.[2]

**Known**

See comparison samples.[1]

**Latent Print**

A print impression not readily visible, made by contact of the hands or feet with a surface resulting in the transfer of materials from the skin to that surface.[1]

**Measurement Scale**

An object showing standard units of length (e.g., ruler) used in photographic documentation of an item of evidence.[1]

**Mist Pattern**

A bloodstain pattern resulting from blood reduced to a spray of micro-drops as a result of the force applied.[2]

**Multiple Scenes**

Two or more physical locations of evidence associated with a crime (e.g., in a crime of personal violence, evidence may be found at the location of the assault and also on the person and clothing of the victim/assailant, the victim's/assailant's vehicle, and locations the victim/assailant frequents and resides).[1]

**Parent Stain**

A bloodstain from which a satellite stain originated.[2]

**Perimeter Stain**

An altered stain that consists of the peripheral characteristics of the original stain.[2]

**Personal Protective Equipment (PPE)**

Articles such as disposable gloves, masks, and eye protection that are utilized to provide a barrier to keep biological or chemical hazards from contacting the skin, eyes, and mucous membranes and to avoid contamination of the crime scene.[1]

**Pool**

A stain resulting from an accumulation of liquid on a surface.[2]

**Presumptive Test**

A chemical test that provides a simple, quick way in which to effectively screen an area/item for the possible presence or absence of a material, i.e., blood. Different types of evidence require different types of presumptive tests.

**Projected Pattern**

A bloodstain pattern resulting from the ejection of a volume of blood under pressure.[2]

**Satellite Stain**

A smaller bloodstain that originated during the formation of the parent stain as a result of blood impacting a surface.[2]

**Saturation Stain**

A bloodstain resulting from the accumulation of liquid blood in an absorbent material.[2]

**Serum Stain**

The stain resulting from the liquid portion of blood (serum) that separates during coagulation.[2]

**Single-use Equipment**

Items that will be used only once to collect evidence, such as biological samples, then discarded to minimize contamination (e.g., tweezers, scalpel blades, droppers).[1]

**Sketches**

During processing these are often represented as hand drawn schematics depicting items observed at the scene, as well as their spatial relationship(s) to each other. Usually accompanied by a series of measurements accounting for the dimensions of the scene(s) and the items contained therein.

**Spatter Stain**

A bloodstain resulting from a blood drop dispersed through the air due to an external force applied to a source of liquid blood.[2]

**Splash Pattern**

A bloodstain pattern resulting from a volume of liquid blood that falls or spills onto a surface.[2]

**Standard / Reference Sample**

See comparison samples.

**Swipe Pattern**

A bloodstain pattern resulting from the transfer of blood from a blood-bearing surface onto another surface, with characteristics that indicate relative motion between the two surfaces.[2]

**Tape Lifts**

The use of adhesive tape strips to collect trace evidence. The application of the strip(s) to the area(s) of interest collects any trace evidence items present.

**Target**

A surface onto which blood has been deposited.[2]

**Trace Evidence**

Physical evidence that results from the transfer of small quantities of materials (e.g., hair, textile fibers, paint chips, glass fragments, gunshot residue particles).[1]

**Trajectory Analysis**

The utilization of bullet holes, bullet impact marks, ricochet marks, etc., to help determine the possible pathway(s) associated with shots fired. Analysis can be used to help establish the possible position(s) of the shooter(s) and/or victim(s). A useful investigative/reconstructive aid that is often incorporated into crime scene reconstructions.

**Transfer Stain**

A bloodstain resulting from contact between a blood-bearing surface and another surface.[2]

**Unknown / Questioned**

See comparison samples.

**Vacuum Sweepings**

A collection method for trace evidence. Use of a vacuum apparatus allows for effective trace evidence collection over larger areas.

### **Void**

An absence of blood in an otherwise continuous bloodstain or bloodstain pattern.[2]

### **Walk-through**

An initial assessment conducted by carefully walking through the scene to evaluate the situation, recognize potential evidence, and determine resources required. Also, a final survey conducted to ensure the scene has been effectively and completely processed.[1]

### **Wipe Pattern**

An altered bloodstain pattern resulting from an object moving through a preexisting wet bloodstain.[2]

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[1] DOJ. "Crime Scene Investigation: A Guide for Law Enforcement." (2000). Web. <<https://www.ncjrs.gov/pdffiles1/nij/178280.pdf>>.

[2] FBI. "Scientific Working Group on Bloodstain Pattern Analysis: Recommended Terminology." *Forensic Science Communications*. 11. 2 (2009). Web. <[http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/april2009/standards/2009\\_04\\_standards01.htm](http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/april2009/standards/2009_04_standards01.htm)>.

# **Digital Evidence Report Standardization Materials**

## **Project Area I: Standardized Report Components**

1. Unique case identifier on each page of report (such as lab number)
2. Title of the report (such as “report of laboratory analysis”)
3. Identification of the laboratory
4. Submitting Agency Info or at a minimum submitting agency
5. List or explanation of items examined
6. General indication of methodology utilized
7. Results/conclusions
8. Date report issued
9. Signature and title of examiner (or electronic equivalent)
10. Pagination of the report (example page 1 of 2 etc.)
11. Statement regarding the report does not constitute the entire case file or equivalent
12. Statement that definitions of terms used in the report can be located at the DCJS website and if applicable on the laboratory website or attached to report

## **Additional Discipline Specific Report Components:**

13. Scope of Work as detailed from the original requestor



## **Project Area II: Standardized Report Language/Statements**

### **Positive**

#### **Digital**

The analysis yielded positive findings according to the scope of work requested.

#### **Multimedia**

Processing steps performed on the submitted media.

### **Negative**

#### **Digital**

- Given the scope requested, tools listed, and analysis performed, there were no findings; or
- There were NO findings for scope provided and analysis performed at this time.

#### **Multimedia**

No further analysis was conducted due to insufficient detail in the area of interest.

### **Inconclusive**

Not deemed necessary.

### **Qualifying**

Not deemed necessary.

### **Disclaimer**

Not deemed necessary.

## **Project Area III: Standardized Terms & Definitions**

### **Adapted from SWGDE and SWGIT Digital & Multimedia Evidence Glossary**

*Version: 2.7 (April 8, 2013) :*

- (i) Image Analysis
- (c) Computer Forensics
- (v) Video Analysis
- (a) Forensic Audio

#### **Achievable Resolution**

(i,v) A direct measurement of the ability of an imaging system to record detail, typically measured by its ability to maintain separation between close subject elements such as fine lines which are usually stated as ‘line pairs or cycles per millimeter’. It is often determined by imaging a resolution test chart. With some imaging systems there may be a slight difference in the horizontal and vertical resolution. If so, the lower of the two values is considered the achievable resolution of the imaging system.

#### **Acquisition**

(c) See “Image”

#### **Administrative Review**

A procedure used to check casework for consistency with agency/laboratory policy and for editorial practice.

#### **Algorithm**

A step-by-step procedure for solving a problem or accomplishing some end.  
[*Webster’s Dictionary*]

#### **Archive Copy**

A copy of data placed on media suitable for long-term storage, from which subsequent working copies can be produced.

#### **Archive Image**

(i,v) Any image placed on media that is suitable for long-term storage.

(c) A bit stream duplicate of the original data placed on media that is suitable for long-term storage.

#### **Archiving**

The process of storing data in a manner suitable for long term availability and retrieval.

**Artifact**

(a,i,v) A visual/aural aberration in an image, video, or audio recording resulting from a technical or operational limitation. Examples include speckles in a scanned picture or “blocking” in images compressed using the JPEG standard.

(c) Information or data created as a result of the use of an electronic device that shows past activity.

**Aspect Ratio**

(i,v) The width to height ratio of an image.

**Audio Enhancement**

Processing of recordings for the purpose of increased intelligibility, attenuation of noise, improvement of understanding the recorded material and/or improvement of quality or ease of hearing.

**Authentication**

The process of substantiating that the data is an accurate representation of what it purports to be.

**Capture**

The process of recording data, such as an image, video sequence, or audio stream.

**Capture Card / Frame Grabber**

A piece of computer hardware that accepts an analog or digital signal and outputs the signal as digital data.

**Capture Device**

A device used in the recording of data.

**Carve**

(c) The extraction of a portion of data for the purpose of analysis.

**CD/DVD (Compact Disc / Digital Versatile Disc)**

Optical disc formats designed to function as digital storage media.

**Cellular Network Isolation Card (CNIC)**

Identity module card that isolates a device from cellular connectivity. CNIC's do not contain a “cipher key” thus preventing access with a cellular network.

**Clarification**

(i,v) See “*Image Enhancement*”

**Codec (Compressor / Decompressor)**

(i,v) A device or program capable of encoding and decoding digital data. Codecs encode a stream or signal for transmission, storage or encryption and decode it for viewing. Codecs are necessary for playback of encoded data. Generally, codecs from DCCTV systems are proprietary.

**Cognitive Image Analysis**

(i,v) The process used to extract visual information from an image.

**Colorimetry**

The quantification of the color of an object.

**Color Range**

The range of colors that can be detected by a sensor.

**Composite Video Signal**

(i,v) An analog signal which contains chroma, video, blanking and sync information and has been combined using one of the coding standards NTSC, PAL, SECAM, etc.

**Compression**

The process of reducing the size of a data file. (See also, “Lossy Compression” and “Lossless Compression”.)

**Compression Ratio**

The size of a data file before compression divided by the file size after compression.

**Computer Forensics**

A sub-discipline of Digital & Multimedia Evidence, which involves the scientific examination, analysis, and/or evaluation of digital evidence in legal matters.

**Copy**

An accurate reproduction of information.

**Data**

Information in analog or digital form that can be transmitted or processed.

**Data Analysis**

The assessment of the information contained within the media.

**Data Extraction**

A process that identifies and recovers information that may not be immediately apparent.

**Deblurring**

(i,v) A type of image restoration used to reverse image degradation, such as motion blur or out-of-focus blur. It is accomplished by applying algorithms based on knowledge or an estimate of the cause of the original degradation.

**Deinterlacing**

(v) Separating an interlaced frame into two discrete fields.

**Demonstrative Comparison**

(v) A method of presenting the similarities and/or differences among images and/or objects without rendering an opinion regarding identification or exclusion.

**Digital CCTV Retrieval**

(v) The process of retrieving video/images from digital CCTV systems.

**Digital Evidence**

Information of probative value that is stored or transmitted in binary form.

**Digital Image**

(i) An image that is represented by discrete numerical values organized in a two-dimensional array. [Taken from the "*Encyclopedia of Photography*" 3rd Edition] When viewed on a monitor or paper, it appears like a photograph.

(c) See "*Image*"

**Directory Listing**

(c) A list of files contained within an object. It may also contain other information such as the size and dates of the files.

**Downloading / Exporting**

(i,v) The process of retrieving audio, video, and still images and transactional data from a DVR system. Can be in either the native/proprietary format or an open format.

**Duplicate**

An accurate and complete reproduction of all data objects independent of the physical media.

**Dynamic Range**

(i) The difference between the brightest highlight and darkest value that a sensor (e.g., film or CCD) can detect and record in a single image.

(a,v) The ratio of the strongest (undistorted) signal to that of the weakest (discernible) signal in a unit or system as expressed in decibels (dB). A way of stating the maximum signal to noise ratio.

**DVR (Digital Video Recorder)**

(i,v) A stand-alone embedded system or a computer based system used to record video and/or audio data.

**Enhancement**

(i,v) See "*Image Enhancement*"

(a) See "*Audio Enhancement*"

**Erased File Recovery**

(c) The process for recovering deleted files.

**Extraction**

(c) A method of exporting data from a source (e.g., copying data from EnCase preview, dumping data from a cell phone).

See "*Data Extraction*"

(i,v) See "*Downloading/Exporting*"

**FAT**

(c) File Allocation Table.

**Field**

(v) An element of a video signal containing alternate horizontal lines. For interlaced video, the scanning pattern is divided into two sets of spaced lines (odd and even) that are displayed sequentially. Each set of lines is called a field, and the interlaced set of the two sets of lines is a frame.

**File Format**

The structure by which data is organized in a file.

**File Slack**

(c) The data between the logical end of a file and the end of the last storage unit for that file.

*Ex:*

For the FAT file system, the data between the logical end of the file and the end of the cluster.

**Fixed Focal Length Lens (Prime Lens)**

(i,v) A lens with a focal length that is not adjustable.

**Focal Length**

(i,v) Distance from the optical center of a lens to its point of focus at the sensor/image plane when focused at infinity. Smaller focal length values provide a wider field of view; larger focal length values provide a narrower field of view.

**Forensic Audio**

A category of testing of Digital & Multimedia Evidence, which involves the scientific examination, analysis, comparison, and/or evaluation of audio.

**Forensic Cloning**

The process of creating a bit stream duplicate of the available data from one physical media to another.

**Forensic Image**

(c) See "*Image*"

**Forensic Wipe**

A verifiable procedure for sanitizing a defined area of digital media by overwriting each byte with a known value.

**Format**

(Verb) The process of preparing a hard disk and/or removable media for data storage. This is not a replacement for a forensic wipe.

(Noun) The structure by which data is organized on a device.

(v) One or several combined elements that may be used to describe the video recording method. These include tape width (e.g., 8mm, ½ inch, ¾ inch, 1 inch), signal form (e.g., composite, Y/C, component), media (e.g., VHS tape, DVD, CD), data storage type (e.g., analog/digital, AVI/MPEG), and signal standard (e.g., NTSC, PAL, SECAM).

**Format Conversion**

(a,i,v) To transfer audio and/or video information from one media type to another and/or from one recording method to another.

**Frame**

(v) Lines of spatial information of a video signal. For interlaced video, a frame consists of two fields, one of odd lines and one of even lines, displayed in sequence. For progressive scan (non-interlaced) video, the frame is written through successive lines that start at the top left of the picture and finish at the bottom right.

**Free Space**

Data storage areas available for use by the computer. The area may already contain previously stored information. Also referred to as Unallocated Space.

**Gaussian Blur**

(i,v) A function typically used to reduce image noise and detail using a specific mathematical function known as the “Gaussian Kernel” or “bell-curve.” The visual effect of this technique is a smoothing of image features as if viewing the image through a translucent filter.

**Hash or Hash Value**

Numerical values, generated by hashing functions, used to substantiate the integrity of digital evidence and/or for inclusion /exclusion comparisons against known value sets.

**Hashing Function**

An established mathematical calculation that generates a numerical value based on input data. This numerical value is referred to as the hash or hash value.

**Image**

(i,v) An imitation or representation of a person or thing, drawn, painted, photographed, etc.

(c) A bit stream copy of the available data. The result may be encapsulated in a proprietary format (e.g., E01, 001).

**Image Analysis**

A sub-discipline of Digital & Multimedia Evidence, which involves the application of image science and domain expertise to examine and interpret the content of an image and/or the image itself in legal matters.



### **Image Averaging**

(i,v) The process of averaging similar images, such as sequential video frames, to reduce noise in stationary scenes.

### **Image Comparison (Photographic Comparison)**

(i) The process of comparing images of questioned objects or persons to known objects or persons or images thereof, and making an assessment of the correspondence between features in these images for rendering an opinion regarding identification or elimination.

### **Image Content Analysis**

(i) The drawing of conclusions about an image. Targets for content analysis include, but are not limited to: the subjects/objects within an image; the conditions under which, or the process by which, the image was captured or created; the physical aspects of the scene (e.g., lighting or composition); and/or the provenance of the image.

### **Image Data Recovery**

(i) The process of retrieving viewable image(s) from a data set.

### **Image Enhancement**

(i,v) Any process intended to improve the visual appearance of an image or specific features within an image.

### **Image Output**

(i) The means by which an image is presented for examination or observation.

### **Image Processing**

(i) Any activity that transforms an input image into an output image.

### **Image Processing Log**

(i) A record of the steps used in the processing of an image.

### **Image Restoration**

See "*Restoration*"

### **Image Synthesis**

(i,v) Any process that renders an image, using computer graphics techniques, for illustrative purposes (i.e., age progression, facial reconstruction, accident/crime scene reconstruction).

**Imaging Technology**

(i,v) Any system or method used to capture, store, process, analyze, transmit, or produce an image. Such systems include film, electronic sensors, cameras, video devices, scanners, printers, computers, etc.

**Image Transmission**

(i,v) The act of moving images from one location to another.

**Integrity Verification**

The process of confirming that the data presented is complete and unaltered since time of acquisition.

**Intermediate Storage**

Any media or device on which data is temporarily stored for transfer to permanent or archival storage.

**Interlaced Scan**

(v) A technique of combining two television fields in order to produce a full frame. The two fields are composed of only odd and only even lines, which are displayed one after the other but with the physical position of all the lines interleaving each other, hence interlace. [CCTV, Vlado Damjanovski, Butterworth-Heinemann, 2000]

**Interpolation**

A method of image processing whereby one pixel, block, or frame is displayed or stored based on the differences between the previous and subsequent pixel, block, or frame of information. [Taken from the *Encyclopedia of Photography* 3rd Edition] This is often done to increase the apparent clarity of an image.

**Log File**

A record of actions, events, and related data.

**Logical Acquisition / Copy**

(c) An accurate reproduction of information contained within a logical volume (e.g., mounted volume, logical drive assignment).

**Lossy Compression**

Compression in which data is lost and cannot be retrieved in its original form.

**Lossless Compression**

Compression in which no data is lost and all data can be retrieved in its original form.

**Media**

Objects on which data can be stored.

**Media Characterization**

The process of inspecting, identifying, and noting the properties of the media.

**Metadata**

Data, frequently embedded within a file, that describes a file or directory, which can include the locations where the content is stored, dates and times, application specific information, and permissions.

**Mobile Phone Forensics**

For legal purposes, the utilization of scientific methodologies to recover data stored by a cellular device.

**Multiplexer / Demultiplexer**

(v) A device used to combine multiple video signals into a single signal or separate a combined signal. These devices are frequently used in security and law enforcement applications for recording and/or displaying multiple camera images simultaneously or in succession.

**Multimedia Evidence**

Analog or digital media, including, but not limited to, film, tape, magnetic and optical media, and/or the information contained therein.

**Native File Format**

The original form of a file. A file created with one application can often be read by others, but a file's native format remains the format it was given by the application that created it. In most cases the specific attributes of a file (for example, fonts in a document) can only be changed when it is opened with the program that created it. [*Newton's Telecom Dictionary*]

**Noise**

(i,v) Variations or disturbances in brightness or color information in an image that do not arise from the scene. Sources of noise include film grain, electronic variations in the input device sensor and circuitry, and stray electromagnetic fields in the signal pathway. It frequently refers to visible artifacts in an image.

**Nominal Resolution**

(i,v) The numerical value of pixels per inch as opposed to the achievable resolution of the imaging device. In the case of flatbed scanners, it is based on the resolution setting in the software controlling the scanner. In the case of digital cameras, this refers to the number of pixels of the camera sensor divided by the corresponding vertical and horizontal dimension of the area photographed.

**Normal Lens**

(i,v) A lens designed to approximate the field of view of the human eye without magnification or reduction. The focal length of a normal lens is based on the sensor size in the camera.

**NTSC**

National Television System Committee also referred to as National Television Standards Committee.

**Original Image**

(i) An accurate and complete replica of the primary image, irrespective of media. For film and analog video, the primary image is the original image.

**PAL**

Phase Alternation Line. [*European Broadcast Union*]

**Partition**

User defined section of electronic media.

**Password Recovery**

The process of locating and identifying a series of characters used to restrict access to data.

**Photogrammetry**

The art, science, and technology of obtaining reliable information about physical objects and the environment through the processes of recording, measuring, and interpreting photographic images and patterns of electromagnetic radiant energy and other phenomena. [*The Manual of Photogrammetry*, 4th Edition, 1980, ASPRS]

- In forensic applications, Photogrammetry, sometimes called “mensuration,” most commonly is used to extract dimensional information from images, such as the height of subjects depicted in surveillance images and accident scene reconstruction. Other forensic photogrammetric applications include visibility and spectral analyses. When applied to video, this is sometimes referred to as “videogrammetry.”

**Photogrammetric Analysis**

The process of obtaining dimensional information regarding objects and people depicted in an image.

**Photometry**

The measurement of light values of objects in an image.

**Physical Copy**

(c) An accurate reproduction of information contained on the physical device.

**Physical Image / Acquisition**

(c) A bitstream duplicate of data contained on a device.

**Pixel**

Picture element, the smallest component of a picture that can be individually processed in an electronic imaging system [*The Focal Encyclopedia of Photography*, 4th Edition 2007].

**Playback Optimization**

(a,v) The process of determining the most suitable equipment and settings for analyzing the output signal.

**Playback**

Recorded material viewed and heard as recorded, facilitated by camcorder, cassette recorder, or other device.

**Primary Image**

(i,v) Refers to the first instance in which an image is recorded onto any media that is a separate, identifiable object. Examples include a digital image recorded on a flash card or a digital image downloaded from the Internet.

**Processed Image**

(i,v) Any image that has undergone enhancement, restoration or other operation.

**Production Switcher**

(a,v) A device and/or software used to mix video and/or audio signals from two or more sources (e.g., cameras, videocassette recorder/players, character generators) for dissolves, wipes, and other transition effects.

**Progressive Scan**

(v) Display scan pattern where each line of the frame is scanned out sequentially.

**Proprietary File Format**

Any file format that is unique to a specific manufacturer or product.

**Quantitative Image Analysis**

(i,v) The process used to extract measurable data from an image.

**Reconstruction**

The process of repairing damaged media in order to allow the retrieval of data.

**Reliability**

The extent to which information can be depended upon.

**Reproducibility**

The extent to which a process yields the same results on repeated trials.

**Residue**

(c) Data that is contained in unallocated space or file slack.

(a) The residue of a filtered signal is the algebraic difference between the filter output and its signal input. [*Diamond Cut Users Manual*]

**Resolution**

(i,v) The act, process, or capability of distinguishing between two separate but adjacent parts or stimuli, such as elements of detail in an image, or similar colors. [Taken from the *Encyclopedia of Photography*, 3rd Edition]

**Resolving Power**

(i,v) See “*Achievable Resolution*”

**Restoration**

(i,v) Restoration is any process applied to an image that has been degraded by a known cause (e.g., defocus or motion blur) to partially or totally remove the effects of that degradation.

(c) The process of restoring data from an image.

**Routing Switcher**

(a,v) A device and/or software used to direct the path of one or more signals into one or more devices.

**Sharpening**

(i,v) A process used to emphasize edge detail in an image by enhancing the high frequency components.

**Standard Conversion**

(v) The transformation of one television system signal to another. For example, NTSC to PAL.

**Source Code**

The list of instructions written in a programming language used to construct a computer program.

**Storage Media**

Any object on which data is preserved.

**S-Video**

(i,v) A signal in which the luminance and chrominance are separate.

**Time-Base Corrector (TBC)**

(v) An electronic device used to correct timing inconsistencies and stabilize the playback of the video signal for optimum quality. It also synchronizes video sources allowing image mixing.

**Timed Expiry**

(v) A feature of DVRs that allows the equipment to adhere to data retention policies that may be mandated in certain parts of the world which results in video data becoming inaccessible after a certain date. This may happen even when the unit is switched off.

**Time Lapse Video Recording**

(v) Process by which images are recorded at less than the standard rate of frames per second (NTSC – 29.97; PAL – 25.00) thus extending the period of time that can be covered by the storage medium.

**Timeline Sequence Reconstruction**

The process of relating images, audio, or other data to one another in a chronologically ordered succession.

**Traditional Enhancement Techniques**

(i) Techniques that have direct counterparts in traditional darkrooms. They include brightness & contrast adjustment, color balancing, cropping, and dodging & burning.

**Trusted Media**

(c) Media of a known state and risk to the examination.

**Unallocated Space**

(c) Data storage areas available for use by the computer. The area may already contain previously stored information. Also referred to as *Free Space*.

**Validation**

The process of performing a set of experiments, which establishes the efficacy and reliability of a tool, technique or procedure or modification thereof.

**Validation Testing**

An evaluation to determine if a tool, technique or procedure functions correctly and as intended.

**Variable Focal Length Lens (Zoom)**

(i,v) A lens that the focal length can be continuously changed between set limits. It can range from wide angle to telephoto.

**Vectorscope**

(v) An electronic device that measures a video signal's chrominance (color) performance.

**Verification**

1. The process of confirming the accuracy of an item to its original.
2. Confirmation that a tool, technique or procedure performs as expected.

**Video**

The electronic representation of a sequence of images, depicting either stationary or moving scenes. It may include audio.

**Video Analysis**

A subdiscipline of Digital & Multimedia Evidence, which involves the scientific examination, comparison, and/or evaluation of video in legal matters.

**Video Distribution Amplifier**

(v) A device used to divide single video signals, while boosting their strength for delivery to multiple video devices.

**Video Enhancement**

Any process intended to improve the visual appearance of video sequences or specific features within video sequences.



**Video Stabilization**

(v) The process of positioning individual frames so that a selected object or person will remain in the same location as the video is played.

**Waveform Monitor**

(v) An electronic device that provides a graphic display of a video signal.

**Work Copy**

A copy or duplicate of a recording or data that can be used for subsequent processing and/or analysis.

**WORM (storage)**

Write Once, Read Many. A storage technology that allows media to be written only once but read an unlimited number of times.

**Write Block / Write Protect**

Hardware and/or software methods of preventing modification of media content.

# **Drug Analysis Report Standardization Materials**

**Project Area I: Standardized Report Components**

1. Unique case identifier on each page of report (such as lab number)
2. Title of the report (such as “report of laboratory analysis”)
3. Identification of the laboratory
4. Submitting Agency Info or at a minimum submitting agency
5. List or explanation of items examined
6. General indication of methodology utilized
7. Results/conclusions
8. Date report issued
9. Signature and title of examiner (or electronic equivalent)
10. Pagination of the report (example page 1 of 2 etc.)
11. Statement regarding the report does not constitute the entire case file or equivalent
12. Statement that definitions of terms used in the report can be located at the DCJS website and if applicable on the laboratory website or attached to report

**Additional Discipline Specific Report Components:**

13. It is recommended that the laboratory report include the estimated uncertainty for all reported measurements, but at a minimum the laboratory shall report the estimated uncertainty when it impacts evaluation of a specification limit stated by a regulatory body, a statute, case law or other legal requirement. The measurement uncertainty value will be expressed as an expanded uncertainty and include the coverage probability expressed in percent. Uncertainty is *not* required for unanalyzed items that are not associated with a sampling plan.

## **Project Area II: Standardized Report Language/Statements**

### **Positive**

**Circumstance:**

Analysis performed-fulfills the criteria for reporting a particular analyte or class of compounds as defined in the laboratory's SOP.

**Reporting Language:**

"Contains [substance]" or name the substance.

Examples:

- *Item 1 contains cocaine.*
- *Item 1: Cocaine.*

### **Negative**

**Circumstance:**

Analysis performed-fulfills the criteria for reporting the absence of a controlled substance as defined in the laboratory's SOP [i.e., little to no response from the instrument or the response from the instrument did not fulfill laboratory identification criteria].

**Reporting Language:**

"No controlled substances identified"

Examples:

- *No controlled substances identified in Item 1.*
- *Item 1: No controlled substances were identified.*

### **No Analysis**

**Circumstance:**

Analysis is not performed.

**Reporting Language:**

"No analysis"

Examples:

- *No analysis was performed on Item 1.*
- *Item 1: No analysis.*

## Preliminary Result

### 1) **Circumstance:**

The laboratory's minimum criteria for a positive or negative result is not fulfilled due to incomplete testing [i.e., specimen was not compared to a controlled substance reference material] and a statement is being reported about a particular analyte or class of compounds. The reporting language must clearly state that the result(s) have not been confirmed. In some cases, a preliminary report may be issued.

#### **Reporting Language:**

"Not confirmed"

*To be used in conjunction with "indicate" qualifier. See example below.*

### 2) **Circumstance:**

The laboratory's minimum criteria for a positive or negative result is not fulfilled due to incomplete testing [i.e., specimen was not compared to a controlled substance reference material] and statement is not being reported about a particular analyte or class of compounds.

#### **Reporting Language:**

"Initial examination only. The presence or absence of a controlled substance was not confirmed."

## Qualifying Statements

When a statement is reported about a particular analyte or class of compounds in the absence of confirmatory testing (ex. pharmaceutical identifiers or color tests only), the laboratory must issue a qualifier using the term "indicate."

#### Example:

*Item 1: Pharmaceutical identification indicates 1 milligram of alprazolam per tablet. Alprazolam was not confirmed.*

When a preliminary result is reported due to unavailability of reference material, a qualifying statement must detail the reason for incomplete testing.

#### Example:

*XLR-11 is indicated in Item 1. XLR-11 was not confirmed because the laboratory does not possess a suitable reference material for confirmation.*

## Methodology

- When an instrumental technique is used to confirm the qualitative result (whether positive or negative), the technique(s) must be specified (i.e., Gas Chromatography – Mass Spectrometry [GCMS]).
- When an instrumental technique is used to arrive at a preliminary result only, the technique(s) must be specified [i.e., Gas Chromatography – Mass Spectrometry (GCMS)].
- When reporting a qualitative result in the absence of an instrumental technique (whether positive, negative or preliminary), the technique(s) used to determine the result must be specified (i.e., microscopic analysis, color test, thin layer chromatography).
- When the quantity or purity of a substance is reported (other than for aggregate weight determination), the instrumental technique used for quantitative analysis [i.e., High-Performance Liquid Chromatography (HPLC)] must be specified.
- All other information on aggregate weight determination and specific equipment / instrumentation used must be in the case record (i.e., analytical balances, etc.)

## Sampling *(if applicable)*

A reference to the sampling plan used by the laboratory will be reported.

## **Project Area III: Standardized Terms & Definitions**

### **Controlled Substance**

Substance(s) listed in the [New York State Public Health Law Article 33 Section 3306](#).

Abbreviations of instrumentation used:

1. **GC** – Gas Chromatography
2. **FID** – Flame Ionization Detection
3. **MS** – Mass Spectrometry
4. **LC** – Liquid Chromatography
5. **UPLC** – Ultra Performance Liquid Chromatography
6. **HPLC** – High Performance (formerly High Pressure) Liquid Chromatography
7. **DAD** – Diode Array Detection
8. **FTIR** – Fourier Transform Infrared Spectroscopy
9. **TLC** – Thin Layer Chromatography
10. **IR** – Infrared Spectroscopy
11. **UV/Vis** – Ultraviolet/Visual Spectroscopy
12. **IA** – Immunoassay
13. **NPD** – Nitrogen Phosphorus Detection
14. **ECD** – Electron Capture Detection
15. **AA** – Atomic Absorption Spectrophotometry
16. **TOF** – Time of Flight
17. **DART** – Direct Analysis in Real Time
18. **Raman** – Raman Spectroscopy

Analytical instruments that use multiple technologies in tandem are indicated by a combination of the abbreviations listed above, for example gas chromatography/mass spectrometry may be abbreviated GCMS, GC/MS or GC-MS.

### **Contains or name the substance**

Analysis performed-fulfills the criteria for reporting a particular analyte or class of compounds as defined in the laboratory's SOP.

### **No controlled substances identified**

Analysis performed-fulfills the criteria for reporting the absence of a controlled substance as defined in the laboratory's SOP.

**Not confirmed**

The laboratory's minimum criterion for reporting a positive or negative result was not fulfilled due to incomplete testing.

**Indicate**

The laboratory did not fulfill the minimum criteria for reporting a positive identification.

**Residue**

An amount (weight/volume) of material that is below the measurement uncertainty (MU), below the minimum sample quantity (MSQ) or unable to be measured at the discretion of the analyst.



# **Fire Debris – Ignitable Liquid Report Standardization Materials**

**Project Area I: Standardized Report Components**

1. Unique case identifier on each page of report (such as lab number)
2. Title of the report (such as “report of laboratory analysis”)
3. Identification of the laboratory
4. Submitting Agency Info or at a minimum submitting agency
5. List or explanation of items examined
6. General indication of methodology utilized
7. Results/conclusions
8. Date report issued
9. Signature and title of examiner (or electronic equivalent)
10. Pagination of the report (example page 1 of 2 etc.)
11. Statement regarding the report does not constitute the entire case file or equivalent
12. Statement that definitions of terms used in the report can be located at the DCJS website and if applicable on the laboratory website or attached to report

**Additional Discipline Specific Report Components:**

13. Date of submission of evidence to the laboratory.
14. Positive / Negative Qualifying Statement:

Example -

The identification of an Ignitable liquid / residue does not necessarily lead to the conclusion that a fire was incendiary in nature. The absence of an Ignitable liquid / residue does not preclude the possibility that ignitable liquids were present.

## **Project Area II: Standardized Report Language/Statements**

### **Positive**

#### **Circumstance:**

An ignitable liquid pattern(s) which is (are) comparable to the available reference(s) within ASTM E1618 ignitable liquid classification is (are) observed in an item.

#### **Reporting Language:**

The specific finding (ASTM class of ignitable liquid; *gasoline, petroleum distillate, isoparaffinic product, aromatic product, naphthenic-paraffinic product, normal-alkane product, oxygenated solvent or miscellaneous*) and range (light, light-medium, medium, medium-heavy, heavy, or the n-alkane range) is reported. The phrase “was identified” may be used.

Example(s) of commercial product(s) in the reported classification and range are given. (The examples may be given either through a statement as part of the finding or through providing the ASTM E1618 classification scheme or equivalent.)

Additional product information or qualifying statements may be provided.

#### **Additional Comments:**

Gasoline is a distinct class of ignitable liquid (no range or examples necessary).

Miscellaneous – reporting the miscellaneous classification as “miscellaneous” is not required.

- Mixtures of two or more products or blended single products comprised of components characteristic of two or more ASTM classes - the range(s) are reported as well as the corresponding two or more ASTM classification(s). Additional compound or product information may be provided.
- Single or few component products are reported based on single component(s) identified rather than ASTM classification (no range necessary, but may be reported). ASTM classification may be reported in addition to the identified components. Furthermore, examples are not required for single component identifications, but may be given. Additional compound or product information may be provided.

#### **Positive Finding Special Circumstances:**

Situations in which the identified ignitable liquid may be present as a constituent of the evidence sample itself (naturally occurring/used in manufacturing of item/or result of heating or burning of the material)

*Note:* Common interfering compounds resulting from inherent constituents of the evidence item, pyrolysis, combustion, or distillation of a substrate are not normally reported except when a significant quantity of an unexplainable product is identified. Derived from ASTM E1618 -11 section 12.3.5.2

Caution shall be used when reporting a positive finding if it is known that the submitted evidence sample itself may consist of a matrix which is known to contain an ignitable liquid of the type identified. Derived from ASTM E 1618-11 section 12.3.3.2. When a positive ignitable liquid finding is reported in situations in which it is known that the identified ignitable liquid may be a constituent of the evidence sample itself such as terpenes in wood, heavy petroleum distillate in newsprint/magazines, or toluene in shoes or other materials with adhesives, then a qualifying statement must be reported along with the positive finding.

The qualifier must indicate that the identified ignitable liquid may be present due to the evidence item itself (naturally occurring/used in manufacturing of item/or result of heating or burning of the material) , and therefore not necessarily from a foreign source.

There are numerous possibilities for special circumstances. Therefore specific qualifying statement wording will vary dependent on each individual case item circumstance.

## Negative

### **Circumstance:**

Little or no response from the instrument or the response from the instrument could not be classified using the ASTM E1618 classification criteria.

*Note:* Common interfering compounds resulting from inherent constituents of the evidence item, pyrolysis, combustion, or distillation of a substrate are not normally reported except when a significant quantity of an unexplainable product is identified. Derived from ASTM E1618 -11 section 12.3.5.2.

### **Reporting Language:**

"Ignitable liquids/or ignitable liquid residues were not identified" or "No ignitable liquids/or ignitable liquid residues identified."

*Additional qualifying statements may be provided.*

## Inconclusive

### **Circumstance:**

Presence or absence of ignitable liquid could not be determined (partial pattern match with unexplained differences possibly due to substrate interference masking part of chromatographic pattern, missing components [e.g., soil substrate] or low abundance).

### **Reporting Language:**

“Testing for ignitable liquids and/or ignitable liquid residues was inconclusive”.

A qualifying statement must be reported along with the inconclusive finding.  
*The qualifier must indicate the reason for the inconclusive statement.*

There are numerous reasons for inconclusive findings. Therefore specific qualifying statement wording will vary dependent on each individual case item circumstance.

## **Project Area III: Standardized Terms & Definitions**

Definitions of instrumentation used:

1. **GC** – Gas Chromatography
2. **MS** – Mass Spectrometry

Analytical instruments that use multiple technologies in tandem are indicated by through a combination of the abbreviations listed above, for example gas chromatography/mass spectrometry is abbreviated GCMS, GC/MS or GC-MS depending on the report software of the laboratory.

### **Comparison Sample** (*ASTM 1732 n — fire debris*)

- 1) a sample of material collected from a fire scene which is, to the best of the investigator's knowledge, identical in every respect to a sample suspected of containing ignitable substance, but which does not contain ignitable substance;
- 2) a sample of suspected ignitable substance submitted for the purpose of comparing with any ignitable substance separated from a debris sample. Limited to class comparison.

### **Control Sample** (*ASTM 1732 n*)

Material of established origin that is used to evaluate the performance of a test or comparison.

### **Identified**

Ignitable liquid found and classified according to ASTM E1618 identification criteria.

### **Not Identified**

Little or no response from the instrument or the response from the instrument could not be classified using the ASTM E1618 classification criteria. Common interfering compounds resulting from inherent constituents of the evidence item, pyrolysis, combustion, or distillation of a substrate are not normally reported except when a significant quantity of an unexplainable product is identified.

### **Product**

A commercially produced item that is a variation of petroleum products or are derived from non-petroleum sources.

### **Inconclusive**

Not able to make a determination as to the presence or absence of an ignitable liquid/ ignitable liquid residue within the item of evidence analyzed.

**Ignitable Liquid / Ignitable Liquid Residue (ILR)**

Any liquid or the liquid phase of any material that is capable of fueling a fire, including a flammable liquid, combustible liquid or any other material that can be liquefied and burned. (NFPA 921 3.3.98). Ignitable liquid residue and ignitable liquid shall be considered the same for the purposes of reporting analytical results.

# **Firearms Report Standardization Materials**



**Project Area I: Standardized Report Components**

1. Unique case identifier on each page of report (such as lab number)
2. Title of the report (such as “report of laboratory analysis”)
3. Identification of the laboratory
4. Submitting Agency Info or at a minimum submitting agency
5. List or explanation of items examined
6. General indication of methodology utilized
7. Results/conclusions
8. Date report issued
9. Signature and title of examiner (or electronic equivalent)
10. Pagination of the report (example page 1 of 2 etc.)
11. Statement regarding the report does not constitute the entire case file or equivalent
12. Statement that definitions of terms used in the report can be located at the DCJS website and if applicable on the laboratory website or attached to report

**Additional Discipline Specific Report Components**

13. The laboratory report will include the estimated uncertainty when it impacts evaluation of a specification limit stated by a regulatory body, a statute, case law or other legal requirement.
14. The measurement uncertainty value will be expressed as an expanded uncertainty and include the coverage probability.

## **Project Area II: Standardized Report Language/Statements**

### **Comparative Analysis**

#### **Identification**

Item x and Item y were microscopically examined and compared. Based on the observed agreement of their class characteristics and sufficient agreement of their individual characteristics, Items x and y are identified as having been (fired in/from or cycled in/through) the (same firearm/specific firearm).

#### **Inconclusive**

Item x and Item y were microscopically examined and compared. There is observed agreement of their class characteristics. However, there is insufficient agreement or disagreement of their individual characteristics to either identify or eliminate the items as having been fired (in/from) the (same firearm/specific firearm).

#### **Elimination**

Item x and Item y were microscopically examined and compared. Based on the observed disagreement of (class and/or individual) characteristics, Items x and y are eliminated as having been fired (in/from) the (same firearm/specific firearm).

#### **Unsuitable for comparison**

Item x was microscopically examined and determined to be unsuitable for comparison. (basis for conclusion)

#### **Suitable for comparison**

Item x was microscopically examined and determined to be suitable for comparison. (basis for conclusion)

### **Operability**

- Description of Evidence
- Identification of Firearm Test Fired
- Type of Ammo Used (specify submitted or of laboratory supply)
- Result
- Special circumstances

**Operable**

The (Item \_\_, or described item) was test fired using submitted/laboratory ammunition and is operable.

The (Item \_\_, or described item) was test fired utilizing laboratory/submitted ammunition. Item \_ (firearm) and the utilized submitted ammunition were found to be operable.

**Inoperable**

The (Item \_\_, or described item) is not operable as submitted. (For Special Circumstances use appropriate statements that detail the reason/cause and any additional information as required)

**Serial Number Restoration**

- Description of Evidence (including obliterated/defaced)
- Identification of Firearm
- Restoration Analysis and/or identification of secondary number (included in report)
- Result – complete and/or partial w/possibilities of questioned characters (if applicable)

The (Item \_\_, or described item) was (physically, chemically, magnetically) processed.

Its serial number was (restored/partially restored) to read (for secondary number “is identified as”): (for partial restorations – an “\*” or other symbol represent partially restored/unrestorable characters-list potential characters if applicable)

The (Item \_\_, or described item) is defaced beyond restoration capabilities.

Restoration attempts on the defaced area of (Item \_\_, or described item) were unsuccessful.

**Barrel/Overall Lengths**

- Description of Evidence (including statement of alteration, if applicable)
- Identification of Firearm
- Result (including uncertainty, if reporting)

(Item \_\_, or described item) has a shortened/altered barrel with a barrel length of X inches.

(Item \_\_, or described item) has a shortened/altered/missing butt stock. The overall length of (Item \_\_, or described item) is X inches.

The length of the barrel was determined by measuring the distance between the muzzle and the face of the (bolt, breech, or breech lock) when closed and when the (shotgun or rifle) was cocked. The overall length of the (shotgun or rifle) is the distance between the extreme ends of the weapon measured along a line parallel to the center line of the bore.

## **Assault Weapons**

- Description of Evidence
- Identification of Firearm
- Listing of observed characteristics

(Item \_\_, or described item) is a semi-automatic (pistol, rifle, shotgun) that accepts a detachable cartridge magazine and has the following characteristics: (list the offending characteristics)

## **Gunshot Residue**

- Description of Evidence
- Identification of Holes
- Type of Examination
- If firearm submitted: Identification of firearm, ammunition used & distances at which patterns taken

Examination of Item X revealed a hole (designate ID & location of hole). Visual/microscopic examination and chemical processing of the area around the hole revealed a pattern of gunshot residues.

The (firearm) and submitted (and/or lab) ammunition were used to produce test patterns at X, X1, X2... and X6 inches. The residue pattern from Item X (“was consistent in size, appearance and/or density with the patterns obtained between X2 and X3 inches, muzzle-to-target” or “indicates a muzzle-to-target distance between X2 and X3 inches”).

The absence of (gunshot residues, patterns, a firearm, etc...) precludes a muzzle- to-target distance determination.

Characteristics (describe characteristics) of gunshot residue were detected. This is observed on surfaces that were within the proximity of a discharging weapon. The proximity depends on multiple factors such as the type of firearm and ammunition used.

## **NIBIN Wording**

Images of the (recovered/test fired) component (Item     ) were entered into the National Integrated Ballistics Information Network (NIBIN) computer database. An additional report will be issued if an association is made with an existing database image.

The test fired components from this (rifle/pistol/shotgun) are not suitable for entry into the National Integrated Ballistics Information Network (NIBIN) Database.

**All conclusions will include the basis for the conclusions.**

## **Project Area III: Standardized Terms & Definitions**

(The following definitions and terms are taken from the Association of Firearm and Tool Mark Examiners Glossary 6th Edition unless otherwise noted.)

### **Action**

The working mechanism of a firearm. The combination of the receiver or frame, the breech bolt, and the other parts of the mechanism by which a firearm is loaded, fired, and unloaded.

### **Ammunition**

One or more loaded cartridges consisting of a primed cartridge case, propellant, and with or without one or more projectiles. Also referred to as fixed ammunition or live ammunition (slang term).

### **Automatic Action / Fully Automatic / Full Auto / Selective Fire**

*\* See NYS Penal Law Section 265 Definitions No. 1*

### **Barrel**

That part of a firearm through which a projectile or shot charge travels under the impetus of powder gasses, compressed air, or other like means. A barrel may be rifled or smooth.

### **Barrel Length**

*\* See NYS Penal Law Section 265 Definitions No. 3*

### **Bolt Action**

A firearm in which the breech closure is in line with the bore at all times, manually reciprocates to load, unload, and cock, and is locked in place by breech bolt lugs and engaging abutments, usually in the receiver. There are two principal types of bolt actions: the turn bolt and the straight pull.

### **Bore**

The interior of a barrel forward of the chamber

### **Breech**

The part of a firearm at the rear of the bore into which the cartridge or propellant is inserted

### **Breech Bolt**

The locking and cartridge head support mechanism of a firearm that operates in line with the axis of the bore

**Bullet**

A non-spherical projectile for use in a rifled barrel

**Bullet Core**

The inner portion of a jacketed bullet often made of lead

**Caliber**

- 1) A term used to designate the specific cartridge for which a firearm is chambered
- 2) In firearms, caliber is the approximate diameter of the circle formed by the tops of the lands of a rifled barrel, typically expressed in hundredths of an inch (38 caliber) or millimeters (9mm caliber)
- 3) In ammunition, caliber is a numerical term, without the decimal point, included in a cartridge name to indicate the nominal bullet diameter

**Carbine**

A rifle of short length and light weight originally designed for mounted troops

**Cartridge**

A single unit of ammunition consisting of the cartridge case, primer, propellant, and with or without one or more projectile(s). Also applies to a shotshell

**Cartridge Case**

The container for all the other components which comprise a cartridge. Serves as a gas seal during the firing of a cartridge

**Chamber**

The rear part of the barrel bore that has been formed to accept a specific cartridge. Revolver cylinders are multi-chambered

**Chemical Tests for GSR Analysis**

Griess, Sodium Rhodizonate, Dithioamide, Diphenylamine

**Chemicals for Serial Number Restoration**

Relative acidic & basic etchants

**Class Characteristics**

Measurable features of a specimen which indicates a restricted group source. They result from design factors, and are determined prior to manufacture

**Cock**

To place a firing mechanism under spring tension

**Copper Washed Bullet**

A term used for lead projectiles with a thin copper colored coating. This finish is found extensively on 22 caliber bullets

**Cycled Through (Chambered In)**

A cartridge moved through the action of a firearm without being discharged

**Cylinder**

The rotating part of a revolver that contains the chambers

**Derringer**

The generic term applied to many variations of pocket size pistols, either percussion or cartridge, made by manufacturers other than Henry Derringer, up to present time

**Discharge**

To cause a firearm to fire

**Elimination**

The items are determined to have not been fired (in/from) the same firearm

**Firearm**

\* See *NYS Penal Law Section 265 Definitions No. 3*

**Fired**

Discharged in/from a firearm

**Fragment**

A portion of the whole item as described

**Frame**

\* See *Receiver*

**Function Testing**

Testing with other than a live cartridge



**Gauge**

A term used in the identification of a shotgun bore. The gauge is equal to the number of round lead balls of bore diameter that equal one pound. Thus 12 gauge is the diameter of a round lead ball weighing 1/12 pound.

**General Rifling Characteristics**

The number, width, and direction of twist of the lands and grooves in a barrel of a given caliber firearm.

**Grip, Pistol**

On shoulder arms, that part of the stock, behind the trigger, shaped similar to the grip of a pistol to afford better grasp.

**Gunpowder**

A variety of powders used in firearms as a propellant charge. A term commonly used when referring to cartridge and muzzle loading propellant.

**Gunshot Residue**

- 1) The total residues resulting from the discharge of a firearm. It includes both, propellant and primer residues, carbonaceous material plus metallic residues from projectiles, fouling, and any lubricant associated with the bullets.
- 2) The spatial distribution of gunshot residues deposited upon a pattern surface.

**Identification**

Items are determined to have been (fired in/from or cycled in/ through) the same firearm. Agreement of a combination of individual characteristics and all discernible class characteristics where the extent of agreement exceeds that which can occur in the comparison of toolmarks made by different tools and is consistent with the agreement demonstrated by toolmarks known to have been produced by the same tool.

**Inconclusive**

Items can neither be identified nor eliminated as having been fired (in/from) the same firearm. Some agreement of individual characteristics and all discernible class characteristics, but insufficient for an identification or agreement of all discernible class characteristics without agreement or disagreement of individual characteristics due to an absence, insufficiency, or lack of reproducibility.

**Individual Characteristics**

Marks produced by the random imperfections or irregularities of tool surfaces. These random imperfections or irregularities are produced incidental to manufacture and/or caused by use, corrosion, or damage. They are unique to that tool and distinguish it from all other tools.

**Inoperable / Non-functional (not operable)**

Incapable of discharging a cartridge

**Jacketed Bullet**

A projectile having an inner core typically enveloped by a metallic substance.

**Land and Groove Impressions**

Impressed areas on the bearing surface of a bullet caused by a bullet engaging with the rifling in the barrel of a firearm.

**Lead Bullet**

A projectile formed from a lead alloy.

**Load**

- 1) The combination of components used to assemble a cartridge or shotshell.
- 2) The placing of cartridges into a firearm magazine or chamber.

**Magazine**

- 1) A secure storage place for gunpowder, ammunition, or explosives.
- 2) A container for cartridges which has a spring and follower to feed those cartridges into the chamber of a firearm. The magazine may be detachable or an integral part of the firearm.

**Malfunction**

The failure of a firearm to function properly. Malfunctions can be caused by the firearm, ammunition, and/or human factors.

**Microscopic Comparison**

A general term for the comparison of two or more items under a microscope.

**Muzzle Attachment**

Compensator, Muzzle Brake, Flash Suppressor

**Not a Firearm (NAF)**

Anything appearing to be a firearm but is not capable of firing a cartridge. (Ex. pellet/BB air pistols and rifles, starter pistols, toy guns, imitation guns, cap guns, water pistols, cigarette lighters, theatrical guns, paint ball guns, etc.)

**Operable / Functional**

Capable of discharging a cartridge

**Overall Length**

\* See *NYS Penal Law Section 265 Definitions No. 3*

**Pistol**

A handgun in which the chamber is integral with the barrel. A term sometimes used for handgun.

**Projectile**

An object propelled by the force of rapidly burning gases or other means.

**Receiver**

The basic unit of a firearm which houses the firing and breech mechanism and to which the barrel and stock are assembled.

**Revolver**

A firearm, usually a handgun, with a cylinder having several chambers so arranged as to rotate around an axis. The firearm is discharged successively by the same firing mechanism.

**Revolver Action**

A firearm, usually a handgun, with a cylinder having several chambers so arranged as to rotate around an axis. The firearm is discharged successively by the same firing mechanism. (*Refer to **Revolver.***)

**Rifle**

\* See *NYS Penal Law Section 265 Definitions No. 3*

**Rifling**

Helical grooves cut or impressed into the bore of a firearm barrel to impart rotary motion to a projectile when fired.

**Sear**

A part which retains the hammer or striker in the cocked position until the trigger is pulled.

**Semiautomatic Action**

\* See *NYS Penal Law Section 265 Definitions No. 21*

**Serial Number**

A number applied to a firearm for identification purposes. The Gun Control Act of 1968 requires all firearms manufactured after 1968 to bear a unique serial number.

**Shot**

Generally, spherical pellets used in loading shotshells or cartridges. Shot can be found in many compositions such as lead, steel, bismuth, tungsten-polymer, tin, zinc, etc.

**Shotgun**

\* See *NYS Penal Law Section 265 Definitions No. 3*

**Shotshell**

A unit of ammunition that may contain a single projectile or multiple projectiles/pellets. Generally shotshells are designed to be fired from shotguns.

**Stock**

The wood or plastic component(s) to which the metal parts of a firearm are attached to enable the shooter to hold the firearm.

**Suitable for Comparison**

When a fired bullet or cartridge case possesses sufficient individual characteristics that could be utilized for a microscopic comparison with another bullet or cartridge case.

**Test Fire**

To discharge a firearm in a laboratory or controlled setting in order to obtain representative bullets and cartridge cases for comparison or analysis, to determine functionality of the firearm, or to produce gunshot residue or shot patterns at known distances.

**Theory of Identification**

- 1) The theory of identification as it pertains to the comparison of toolmarks enables opinions of common origin to be made when the unique surface contours of two toolmarks are in "sufficient agreement."

- 2) This “sufficient agreement” is related to the significant duplication of random toolmarks as evidenced by the correspondence of a pattern or combination of patterns of surface contours. Significance is determined by the comparative examination of two or more sets of surface contours patterns comprised of individual peaks, ridges and furrows. Specifically, the relative height or depth, width, curvature and spatial relationship of the individual peaks, ridges and furrows within one set of surface contours are defined and compared to the corresponding features in the second set of surface contours. Agreement is significant when it exceeds the best agreement demonstrated between toolmarks known to have been produced by different tools and is consistent with agreement demonstrated by toolmarks known to have been produced by the same tool. The statement that “sufficient agreement” exists between two toolmarks means that the likelihood another tool could have made the mark is so remote as to be considered a practical impossibility. Currently the interpretation of individualization/identification is subjective in nature, founded on scientific principles and based on the examiner’s training and experience.

### **Trigger Pull**

The amount of force which must be applied to the trigger of a firearm to cause sear release. It is measured by hanging weights or an instrument touching the trigger at a point where the trigger finger would normally rest. The force applied during measurement is approximately parallel to the bore axis.

### **Unsuitable for Comparison**

Item exhibits insufficient characteristics for comparison.

### **NYS Penal Law Section 265 Definitions:**

1. "**Machine-gun**" means a weapon of any description, irrespective of Size, by whatever name known, loaded or unloaded, from which a number of shots or bullets may be rapidly or automatically discharged from a magazine with one continuous pull of the trigger and includes a sub-machine gun.
2. "**Firearm silencer**" means any instrument, attachment, weapon or appliance for causing the firing of any gun, revolver, pistol or other firearms to be silent or intended to lessen or muffle the noise of the firing of any gun, revolver, pistol or other firearms.
3. "**Firearm**" means
  - a) any pistol or revolver; or
  - b) a shotgun having one or more barrels less than eighteen inches in length; or

- c) a rifle having one or more barrels less than sixteen inches in length; or
  - d) any weapon made from a shotgun or rifle whether by alteration, modification, or otherwise if such weapon as altered, modified, or otherwise has an overall length of less than twenty-six inches; or
  - e) an assault weapon
    - For the purpose of this subdivision the length of the barrel on a shotgun or rifle shall be determined by measuring the distance between the muzzle and the face of the bolt, breech, or breechlock when closed and when the shotgun or rifle is cocked; the overall length of a weapon made from a shotgun or rifle is the distance between the extreme ends of the weapon measured along a line parallel to the center line of the bore. Firearm does not include an antique firearm.
7. "**Deface**" means to remove, deface, cover, alter or destroy the manufacturer's serial number or any other distinguishing number or identification mark
11. "**Rifle**" means a weapon designed or redesigned, made or remade, and intended to be fired from the shoulder and designed or redesigned and made or remade to use the energy of the explosive in a fixed metallic cartridge to fire only a single projectile through a rifled bore for each single pull of the trigger.
12. "**Shotgun**" means a weapon designed or redesigned, made or remade, and intended to be fired from the shoulder and designed or redesigned and made or remade to use the energy of the explosive in a fixed shotgun shell to fire through a smooth bore either a number of ball shot or a single projectile for each single pull of the trigger.
14. "**Antique firearm**" means any unloaded muzzle loading pistol or revolver with a matchlock, flintlock, percussion cap, or similar type of ignition system, or a pistol or revolver which uses fixed cartridges which are no longer available in the ordinary channels of commercial trade.
21. "**Semiautomatic**" means any repeating rifle, shotgun or pistol, regardless of barrel or overall length, which utilizes a portion of the energy of a firing cartridge or shell to extract the fired cartridge case or spent shell and chamber the next round, and which requires a separate pull of the trigger to fire each cartridge or shell.
22. "**Assault weapon**" means
- a) a semiautomatic rifle that has an ability to accept a detachable magazine and has at least one of the following characteristics:
    - i) folding or telescoping stock;

- ii) a pistol grip that protrudes conspicuously beneath the action of the weapon;
  - iii) a thumbhole stock;
  - iv) a second handgrip or a protruding grip that can be held by the non-trigger hand;
  - v) a bayonet mount;
  - vi) a flash suppressor, muzzle break, muzzle compensator, or threaded barrel designed to accommodate a flash suppressor, muzzle break, or muzzle compensator;
  - vii) a grenade launcher; or
- b) a semiautomatic shotgun that has at least one of the following characteristics:
- i) a folding or telescoping stock;
  - ii) a thumbhole stock;
  - iii) a second handgrip or a protruding grip that can be held by the non-trigger hand;
  - iv) a fixed magazine capacity in excess of seven rounds;
  - v) an ability to accept a detachable magazine; or
- c) semiautomatic pistol that has an ability to accept a detachable magazine and has at least one of the following characteristics:
- i) a folding or telescoping stock;
  - ii) a thumbhole stock;
  - iii) a second handgrip or a protruding grip that can be held by the non-trigger hand;
  - iv) capacity to accept an ammunition magazine that attaches to the pistol outside of the pistol grip;
  - v) a threaded barrel capable of accepting a barrel extender, flash suppressor, forward handgrip, or silencer;
  - vi) a shroud that is attached to, or partially or completely encircles, the barrel and that permits the shooter to hold the firearm with the non-trigger hand without being burned;
  - vii) a manufactured weight of fifty ounces or more when the pistol is unloaded; or
  - viii) a semiautomatic version of an automatic rifle, shotgun or firearm; a revolving cylinder shotgun;
- d) a semiautomatic rifle, a semiautomatic shotgun or a semiautomatic pistol or weapon defined in subparagraph (v) of paragraph (e) of subdivision twenty-two of section 265.00 of this chapter as added by chapter one hundred eighty-nine of the laws of two thousand and otherwise lawfully possessed pursuant to such chapter of the laws of two thousand prior to September fourteenth, nineteen hundred ninety-four;

- e) a semiautomatic rifle, a semiautomatic shotgun or a semiautomatic pistol or weapon defined in paragraph (a), (b) or (c) of this subdivision, possessed prior to the date of enactment of the chapter of the laws of two thousand thirteen which added this paragraph;
- f) provided, however, that such term does not include:
  - i) any rifle, shotgun or pistol that (A) is manually operated by bolt, pump, lever or slide action; (B) has been rendered permanently inoperable; or (C) is an antique firearm as defined in 18 U.S.C. 921(a) (16);
  - ii) a semiautomatic rifle that cannot accept a detachable magazine that holds more than five rounds of ammunition;
  - iii) a semiautomatic shotgun that cannot hold more than five rounds of ammunition in a fixed or detachable magazine; or
  - iv) a rifle, shotgun or pistol, or a replica or a duplicate thereof, specified in Appendix A to 18 U.S.C. 922 as such weapon was manufactured on October first, nineteen hundred ninety-three. The mere fact that a weapon is not listed in Appendix A shall not be construed to mean that such weapon is an assault weapon;
  - v) any weapon validly registered pursuant to subdivision sixteen-A of section 400.00 of this chapter. Such weapons shall be subject to the provisions of paragraph (h) of this subdivision;
  - vi) any firearm, rifle, or shotgun that was manufactured at least fifty years prior to the current date, but not including replicas thereof that is validly registered pursuant to subdivision sixteen-a of section 400.00 of this chapter;
- g) Any weapon defined in paragraph (e) or (f) of this subdivision and any large capacity ammunition feeding device that was legally possessed by an individual prior to the enactment of the chapter of the laws of two thousand thirteen which added this paragraph, may only be sold to, exchanged with or disposed of to a purchaser authorized to possess such weapons or to an individual or entity outside of the state provided that any such transfer to an individual or entity outside of the state must be reported to the entity wherein the weapon is registered within seventy-two hours of such transfer. An individual who transfers any such weapon or large capacity ammunition device to an individual inside New York state or without complying with the provisions of this paragraph shall be guilty of a class A misdemeanor unless such large capacity ammunition feeding device, the possession of which is made illegal by the chapter of the laws of two thousand thirteen which added this paragraph, is transferred within one year of the effective date of the chapter of the laws of two thousand thirteen which added this paragraph.



23. **"Large capacity ammunition feeding device"** means a magazine, belt, drum, feed strip, or similar device, that
- a) has a capacity of, or that can be readily restored or converted to accept, more than ten rounds of ammunition, or \*
  - b) contains more than seven rounds of ammunition, or
  - c) is obtained after the effective date of the chapter of the laws of two thousand thirteen which amended this subdivision and has a capacity of, or that can be readily restored or converted to accept, more than seven rounds of ammunition

\* NB Suspended and NOT Effective per ch 1/2013 § 58, as amended by ch 57/2013 Pt. FF § 4; provided, however, that such term does not include an attached tubular device designed to accept, and capable of operating only with, .22 caliber rimfire ammunition or a feeding device that is a curio or relic. A feeding device that is a curio or relic is defined as a device that:

- i) was manufactured at least fifty years prior to the current date,
- ii) is only capable of being used exclusively in a firearm, rifle, or shotgun that was manufactured at least fifty years prior to the current date, but not including replicas thereof,
- iii) is possessed by an individual who is not prohibited by state or federal law from possessing a firearm and
- iv) is registered with the division of state police pursuant to subdivision sixteen-a of section 400.00 of this chapter, except such feeding devices transferred into the state may be registered at any time, provided they are registered within thirty days of their transfer into the state. Notwithstanding paragraph (h) of subdivision twenty-two of this section, such feeding devices may be transferred provided that such transfer shall be subject to the provisions of section 400.03 of this chapter including the check required to be conducted pursuant to such section.

\* *Note:* Refer to appropriate law on date of recovery for definition

# **Latent Print Processing Report Standardization Materials**

## **Project Area I: Standardized Report Components**

1. Unique case identifier on each page of report (such as lab number)
2. Title of the report (such as “report of laboratory analysis”)
3. Identification of the laboratory
4. Submitting Agency Info or at a minimum submitting agency
5. List or explanation of items examined
6. General indication of methodology utilized
7. Results/conclusions
8. Date report issued
9. Signature and title of examiner (or electronic equivalent)
10. Pagination of the report (example page 1 of 2 etc.)
11. Statement regarding the report does not constitute the entire case file or equivalent
12. Statement that definitions of terms used in the report can be located at the DCJS website and if applicable on the laboratory website or attached to report

## **Project Area II: Standardized Report Language/Statements**

### **Latent Print Processing**

The following concepts must be included in the report template (if applicable):

#### **a) General development method used to process evidence**

Evidence was processed using Visual/Chemical/Physical techniques/methods.

#### **b) Latent prints recovered**

##### ***Laboratories with processing analysts***

- Number of latent prints and unique identifiers recovered for further examination
  - Qualifier should be: “of potential value for further examination” or “suitable for capture”
- “Latent print(s) or friction ridge detail recovered from”
- Method used to capture latent impression (e.g., Digitally captured, Lifted)

##### ***Laboratories with trained comparison analysts***

- Number of latent prints and unique identifiers recovered for further examination
  - Qualifier should be: “suitable for further examination” or “suitable for capture”
- “Latent print(s) or friction ridge detail recovered from”
- Method used to capture latent impression (e.g., Digitally captured, Lifted)

#### **c) No latent prints recovered**

If no friction ridge detail was observed:

- No latent prints/friction ridge detail were/was observed

If no friction ridge detail of suitable quality for further examination was observed:

- No latent prints/friction ridge detail suitable for capture/identification were/was observed

### **Additional evidence (if applicable)**

Description of non-latent print evidence (e.g., DNA/ Trace/ Impressions/ QD) and method of collection and preservation.

### **No examination performed**

- Evidence was not examined.
- Evidence was not conducive for latent print examination (state reason).

## **Project Area III: Standardized Terms & Definitions**

### **ACE-V**

The acronym for a scientific method; Analysis, Comparison, Evaluation, and Verification (see individual terms).

### **AFIS**

The acronym for Automated Fingerprint Identification System, a generic term for a fingerprint matching, storage, and retrieval system.

### **Analysis**

The first step of the ACE-V method. The assessment of an impression to determine suitability for comparison.

### **Blind Verification**

The independent examination of one or more friction ridge impressions at any stage of the ACE process by another competent examiner who is provided with no, or limited, contextual information, and has no expectation or knowledge of the determinations or conclusions of the original examiner.

### **Characteristics**

Distinctive details of the friction ridges, including Level 1, 2, and 3 details (also known as features).

### **Chemical**

The application of latent print reagents that react with latent print residues in order to develop friction ridge impressions.

### **Comparison**

The second step of the ACE-V method. The observation of two or more impressions to determine the existence of discrepancies, dissimilarities, or similarities.

### **Complete Friction Ridge Exemplars**

A systematic recording of all friction ridge detail appearing on the palmar sides of the hands. This includes the extreme sides of the palms, joints, tips, and sides of the fingers (also known as major case prints).

**Conclusion**

Determination made during the evaluation stage of ACE-V, including individualization, inconclusive, exclusion.

**Consultation**

A significant interaction between examiners regarding one or more impressions in question.

**Distortion**

Variances in the reproduction of friction skin caused by factors such as pressure, movement, force, and contact surface.

**Elimination Prints**

Exemplars of friction ridge skin detail of persons known to have had legitimate access to an object or location.

**Evaluation**

The third step of the ACE-V method wherein an examiner assesses the value of the details observed during the analysis and the comparison steps and reaches a conclusion.

**Exclusion**

The determination by an examiner that there is sufficient quality and quantity of detail in disagreement to conclude that two areas of friction ridge impressions did not originate from the same source.

**Exemplars**

The prints of an individual, associated with a known or claimed identity, and deliberately recorded electronically, by ink, or by another medium (also known as known prints).

**Features**

Distinctive details of the friction ridges, including Level 1, 2, and 3 details (also known as characteristics).

**Fingerprint**

An impression of the friction ridges of all or any part of the finger.

**Friction Ridge**

A raised portion of the epidermis on the palmar or plantar skin, consisting of one or more connected ridge units.

### **Friction Ridge Detail (Morphology)**

An area comprised of the combination of ridge flow, ridge characteristics, and ridge structure.

### **Friction Ridge Unit**

A single section of ridge containing one pore.

### **IAFIS**

The acronym for Integrated Automated Fingerprint Identification System, the FBI's national AFIS.

### **Identification**

1. See individualization.
2. In some forensic disciplines, this term denotes the similarity of class characteristics.

### **Impression**

Friction ridge detail deposited on a surface.

### **Inconclusive**

The determination by an examiner that there is neither sufficient agreement to individualize, nor sufficient disagreement to exclude.

### **Individualization**

The determination by an examiner that there is sufficient quality and quantity of detail in agreement to conclude that two friction ridge impressions originated from the same source.

### **Joint (of the finger)**

The hinged area that separates segments of the finger.

### **Known Prints (finger, palm, foot)**

The prints of an individual, associated with a known or claimed identity, and deliberately recorded electronically, by ink, or by another medium (also known as exemplars).

### **Latent Print**

1. Transferred impression of friction ridge detail not readily visible.
2. Generic term used for unintentionally deposited friction ridge detail.

**Level 1 Detail**

Friction ridge flow, pattern type, and general morphological information. Level 1 detail may be used for exclusionary purposes, however may not be used alone to reach a conclusion of identification.

**Level 2 Detail**

Individual friction ridge paths and associated events, including minutiae. Level 2 detail may be used alone, or in conjunction with level 1 detail to reach a conclusion of identification or exclusion.

**Level 3 Detail**

Friction ridge dimensional attributes, such as width, edge shapes, and pores. Level 3 detail may be used in conjunction with level 2 detail to reach a conclusion of identification. Level 3 detail may not be used alone in order to reach a conclusion.

**Lift**

An adhesive or other medium used to transfer a friction ridge impression from a substrate.

**Major Case Print / Impressions**

A systematic recording of the friction ridge detail appearing on the palmar sides of the hands. This includes the extreme sides of the palms, joints, tips, and sides of the fingers (also known as complete friction ridge exemplars).

**Palmprint**

An impression of the friction ridges of all or any part of the palmar surface of the hand.

**Pattern type**

Fundamental pattern of the ridge flow: arch, loop, whorl. Arches are subdivided into plain and tented arches; loops are subdivided into radial and ulnar loops; whorls are subdivided into plain whorls, double loops, pocket loops, and accidental whorls.

**Quality**

The clarity of information contained within a friction ridge impression.

**Quantity**

The amount of information contained within a friction ridge impression.

**Physical**

The application of non-chemical techniques to develop friction ridge impressions.



**SABIS**

The acronym for the Statewide Automated Biometric Identification System, the New York State fingerprint and palmprint matching, storage, and retrieval system.

**Simultaneous Impression**

Two or more friction ridge impressions from the same hand or foot deposited concurrently.

**Source**

An area of friction ridge skin from an individual from which an impression originated.

**Sufficiency**

The product of the quality and quantity of the objective data under observation (e.g., friction ridge, crease, and scar features).

**Sufficient**

The determination that there is sufficiency in a comparison to reach a conclusion at the evaluation stage.

**Suitable**

The determination that there is sufficiency in an impression to be of value for further analysis or comparison.

**Tenprint**

1. A generic reference to examinations performed on intentionally recorded friction ridge impressions.
2. A controlled recording of an individual's available fingers using ink, electronic imaging, or other medium.

**Visual**

As seen by the human eye without the aid of alternate light sources or development techniques

**Verification**

The independent application of the ACE process as utilized by a subsequent examiner to either support or refute the conclusions of the original examiner; this may be conducted as blind verification. Verification may be followed by some level of review as specified by agency policy.

# **Latent Print Comparison Report Standardization Materials**

## **Project Area I: Standardized Report Components**

1. Unique case identifier on each page of report (such as lab number)
2. Title of the report (such as “report of laboratory analysis”)
3. Identification of the laboratory
4. Submitting Agency Info or at a minimum submitting agency
5. List or explanation of items examined
6. General indication of methodology utilized
7. Results/conclusions
8. Date report issued
9. Signature and title of examiner (or electronic equivalent)
10. Pagination of the report (example page 1 of 2 etc.)
11. Statement regarding the report does not constitute the entire case file or equivalent
12. Statement that definitions of terms used in the report can be located at the DCJS website and if applicable on the laboratory website or attached to report

## **Additional Discipline Specific Report Components:**

13. Available exemplars: Include name (Alias/alternative DOB if relevant), Anatomical Source, Origin or record, and Identification number (e.g., NYSID)
14. Automated Databases (SABIS/AFIS/NGI) - Information concerning the search of latent print evidence through automated databases, and the inclusion of what databases were searched. Statement must include: latent print(s) searched, what databases were searched, results, entrance to ULD, and if a hit was made the name/identifier of subject. Statement can be narrative or tabular format.

## **Project Area II: Standardized Report Language/Statements**

### **Analysis of Latent Print (Friction Ridge) Impressions**

#### **Determination of Suitability**

Depending on agency approach, the reporting statements for indicating latent print suitability will minimally contain language similar to the following for each approach:

##### **Approach #1:**

- “suitable for identification” or “of value for identification”
- “not suitable for identification” or “of no value for identification”

##### **Approach #2:**

- “suitable for comparison” or “of value for comparison”
- “not suitable for comparison” or “of no value for comparison”
- “suitable for exclusion only” or “of value for exclusion only”

### **Comparison/Evaluation of Latent Print (Friction Ridge) Impressions**

#### **Identification**

A latent impression and a known exemplar print have been compared and have a sufficient amount of corresponding agreement, without the presence of an unexplainable discrepancy or dissimilarity.

When the comparison and evaluation results in an identification decision, reporting will include: the latent print identifier (as determined by individual lab policy), the name of the subject, and the conclusion (Identification). Individual laboratories may determine if the anatomical source is listed or not. (e.g., 1A/John Jones/Identification- Left Thumb).

##### **Required terminology to be included in statement:**

- identified or individualized
- identification or individualization

#### **Exclusion**

A latent impression and a known exemplar card have been compared and there is a discordance of data, leading to the conclusion that the impressions did not originate from a single source. The adoption of one of the analysis approaches, as described above, will determine the sufficiency of latent print evidence for the determination of exclusionary value in accordance with laboratory policy.

When the comparison and evaluation results in an exclusion decision reporting will include: the latent print identifier (as determined by individual lab policy), the name of the subject, and the conclusion (Exclusion). If laboratory policy has adopted SWGFAST Approach 2 (Section 5.1.4.2 of Document 10), report must state during analysis if latent is suitable for exclusion value only.

**Required terminology to be included in statement:**

- excluded or exclusion

**Inconclusive**

Based upon the data available, the examiner is unable to reach a conclusion of Identification or Exclusion.

When the comparison and evaluation results in an inconclusive decision reporting will include: the latent print identifier (as determined by individual lab policy), the name of the subject, the conclusion (Inconclusive), and reasoning for the inconclusive result.

**Required terminology to be included in statement must be similar to:**

- “not identified/individualized or excluded” or
- “no identification/individualization or exclusion”
- “did not reveal an identification/individualization or exclusion”

## **Project Area III: Standardized Terms & Definitions**

### **ACE-V**

The acronym for a scientific method; Analysis, Comparison, Evaluation, and Verification (see individual terms).

### **AFIS**

The acronym for Automated Fingerprint Identification System, a generic term for a fingerprint matching, storage, and retrieval system.

### **Analysis**

The first step of the ACE-V method. The assessment of an impression to determine suitability for comparison.

### **Blind Verification**

The independent examination of one or more friction ridge impressions at any stage of the ACE process by another competent examiner who is provided with no, or limited, contextual information, and has no expectation or knowledge of the determinations or conclusions of the original examiner.

### **Characteristics**

Distinctive details of the friction ridges, including Level 1, 2, and 3 details (also known as features).

### **Comparison**

The second step of the ACE-V method. The observation of two or more impressions to determine the existence of discrepancies, dissimilarities, or similarities.

### **Complete Friction Ridge Exemplars**

A systematic recording of all friction ridge detail appearing on the palmar sides of the hands. This includes the extreme sides of the palms, joints, tips, and sides of the fingers (also known as major case prints).

### **Conclusion**

Determination made during the evaluation stage of ACE-V, including individualization, inconclusive, exclusion.

### **Consultation**

A significant interaction between examiners regarding one or more impressions in question.

**Distortion**

Variances in the reproduction of friction skin caused by factors such as pressure, movement, force, and contact surface.

**Elimination Prints**

Exemplars of friction ridge skin detail of persons known to have had legitimate access to an object or location.

**Evaluation**

The third step of the ACE-V method wherein an examiner assesses the value of the details observed during the analysis and the comparison steps and reaches a conclusion.

**Exclusion**

The determination by an examiner that there is sufficient quality and quantity of detail in disagreement to conclude that two areas of friction ridge impressions did not originate from the same source.

**Exemplars**

The prints of an individual, associated with a known or claimed identity, and deliberately recorded electronically, by ink, or by another medium (also known as known prints).

**FBI/NGI**

The acronym for the Federal Bureau of Investigation's Next Generation Identification System.

**Features**

Distinctive details of the friction ridges, including Level 1, 2, and 3 details (also known as characteristics).

**Fingerprint**

An impression of the friction ridges of all or any part of the finger.

**Friction Ridge**

A raised portion of the epidermis on the palmar or plantar skin, consisting of one or more connected ridge units.

**Friction Ridge Detail (Morphology)**

An area comprised of the combination of ridge flow, ridge characteristics, and ridge structure.

**Friction Ridge Unit**

A single section of ridge containing one pore.

**Identification**

1. See *Individualization*.
2. In some forensic disciplines, this term denotes the similarity of class characteristics.

**Impression**

Friction ridge detail deposited on a surface.

**Inconclusive**

The determination by an examiner that there is neither sufficient agreement to individualize, nor sufficient disagreement to exclude.

**Individualization**

The determination by an examiner that there is sufficient quality and quantity of detail in agreement to conclude that two friction ridge impressions originated from the same source.

**Joint (of the finger)**

The hinged area that separates segments of the finger.

**Known Prints (finger, palm, foot)**

The prints of an individual, associated with a known or claimed identity, and deliberately recorded electronically, by ink, or by another medium (also known as exemplars).

**Latent Print**

1. Transferred impression of friction ridge detail not readily visible.
2. Generic term used for unintentionally deposited friction ridge detail.

**Level 1 Detail**

Friction ridge flow, pattern type, and general morphological information. Level 1 detail may be used for exclusionary purposes, however may not be used alone to reach a conclusion of identification.

**Level 2 Detail**

Individual friction ridge paths and associated events, including minutiae. Level 2 detail maybe used alone, or in conjunction with level 1 detail to reach a conclusion of identification or exclusion.



**Level 3 Detail**

Friction ridge dimensional attributes, such as width, edge shapes, and pores. Level 3 detail may be used in conjunction with level 2 detail to reach a conclusion of identification. Level 3 detail may not be used alone in order to reach a conclusion.

**Lift**

An adhesive or other medium used to transfer a friction ridge impression from a substrate.

**Major Case Print / Impressions**

A systematic recording of the friction ridge detail appearing on the palmar sides of the hands. This includes the extreme sides of the palms, joints, tips, and sides of the fingers (also known as complete friction ridge exemplars).

**Palmprint**

An impression of the friction ridges of all or any part of the palmar surface of the hand.

**Pattern type**

Fundamental pattern of the ridge flow: arch, loop, whorl. Arches are subdivided into plain and tented arches; loops are subdivided into radial and ulnar loops; whorls are subdivided into plain whorls, double loops, pocket loops, and accidental whorls.

**Quality**

The clarity of information contained within a friction ridge impression.

**Quantity**

The amount of information contained within a friction ridge impression.

**SABIS**

The Statewide Automated Biometric Identification System. New York State maintains an automated database for the search of fingerprint and palmprint impressions to a known exemplar repository.

**Simultaneous Impression**

Two or more friction ridge impressions from the same hand or foot deposited concurrently.

**Source**

An area of friction ridge skin from an individual from which an impression originated.

**Sufficiency**

The product of the quality and quantity of the objective data under observation (e.g., friction ridge, crease, and scar features).

**Sufficient**

The determination that there is sufficiency in a comparison to reach a conclusion at the evaluation stage.

**Suitable**

The determination that there is sufficiency in an impression to be of value for further analysis or comparison.

**Tenprint**

1. A generic reference to examinations performed on intentionally recorded friction ridge impressions.
2. A controlled recording of an individual's available fingers using ink, electronic imaging, or other medium.

**Unsolved Latent File**

Database in SABIS and FBI NGI where unsolved latent print images are deposited. The Unsolved Latent File may also be referred to as the Unsolved Latent Database(s).

**Verification**

The independent application of the ACE process as utilized by a subsequent examiner to either support or refute the conclusions of the original examiner; this may be conducted as blind verification. Verification may be followed by some level of review as specified by agency policy.

# **Questioned Documents Report Standardization Materials**

**Project Area I: Standardized Report Components**

1. Unique case identifier on each page of report (such as lab number)
2. Title of the report (such as “report of laboratory analysis”)
3. Identification of the laboratory
4. Submitting Agency Info or at a minimum submitting agency
5. List or explanation of items examined
6. General indication of methodology utilized
7. Results/conclusions
8. Date report issued
9. Signature and title of examiner (or electronic equivalent)
10. Pagination of the report (example page 1 of 2 etc.)
11. Statement regarding the report does not constitute the entire case file or equivalent
12. Statement that definitions of terms used in the report can be located at the DCJS website and if applicable on the laboratory website or attached to report

**Additional Discipline Specific Report Components:**

13. Each submitted item will have:
  - a. A unique identifier associated with it
  - b. The date it was received

## **Project Area II: Standardized Report Language/Statements**

### **ESDA/Visual**

#### **Positive**

- The evidence (sample name) was examined utilizing (describe method – visually/ESDA) for the possible presence of indented impressions. (Multiple) impressions were found (see page\_\_\_for interpretation).
- (A copy of the ESDA image will be included in the report.)

#### **Negative** (Positive of No Value)

- 1.b.1 No impressions of investigative value were found.
- 1.b.2 The evidence (sample name) was examined utilizing (describe method – visually/ESDA) for the possible presence of indented impressions; no impressions of investigative value were found.

#### **Inconclusive**

N/A

### **Print Process**

#### **Positive**

Visual and microscopic examination revealed the presence of:

- Non-impact print process (define further e.g., ink jet/dry toner/off set/etc.)
- Impact printing

#### **Negative**

N/A

#### **Inconclusive**

The print process cannot be determined. (A qualifier(s) will be inserted as to the limitations.)

### **Physical Match**

#### **Positive**

The questioned samples were at one time joined together

#### **Negative**

The questioned samples were not at one time joined together.

#### **Inconclusive**

The evidence submitted does not allow a definitive determination as to if the objects were at one time joined together. (A qualifier(s) will be inserted as to the limitations.)

## Paper

### Positive

Could have originated from a common source or another source with similar characteristics to those examined.

- Another analytical technique may reveal differences.

### Negative

Could not have originated from the same source based upon observed differences

### Inconclusive

- The presence of similar and different characteristics precludes a determination of common origin.
- The quality of the known or questioned samples precludes any determination.

## Ink

### Positive

(Insert methodology used) showed no differences in the inks examined. The inks could have originated from a common source or another source with similar characteristics.

- Another analytical technique may reveal differences.

### Negative

Could not have originated from the same source based upon observed differences. (Insert Methodology used).

### Inconclusive

- The presence of similar and different characteristics precludes a determination of common origin.
- The quality of the known or questioned samples precludes any determination.

## Writing Instrument

### Positive

Visual and microscopic examination revealed that the instrument used to create the observed writing (was/is consistent with, or has characteristic of) a \_\_\_\_\_.

### Negative

N/A

### Inconclusive

- No definitive determination could be made regarding the writing instrument used to create the observed writing (A qualifier(s) will be inserted as to the limitations.).
- The quality of the known or questioned samples precludes any determination.

## Alterations / Obliterations

### Positive

(Insert method used) revealed that the document was altered in the following manner: - (insert how document was altered).

### Negative

No differences were observed by (insert method) examination.

### Inconclusive

A definitive determination could not be reached; e.g., the same writing implement was used to alter/obliterate the evidence. (A qualifier(s) will be inserted as to the limitations.)

## Typewritten Material - Class Characteristic

### Positive

- Sufficient class characteristics are present to determine that the documents were produced by the same class of machine/machine system or any other machine/machine system that exhibits the same class features/characteristics.
- Machine system consists of: (give description of machine system elements).

### Negative

Sufficient differences exist to exclude the possibility of common class of machine.

### Inconclusive

- The text provided for comparison is too limited to allow for a definitive determination.
- The presence of similar and different characteristics precludes a determination of common origin.
- The quality of the known or questioned samples precludes any determination.

## Typewritten Material – Individual Characteristic

### Positive

- Sufficient individual characteristics are present to determine that the documents were produced by the same machine/machine system.
- Machine system consists of: (give description of machine system elements).

### Negative

Sufficient differences exist to exclude the possibility of common source.

### Inconclusive

- The text provided for comparison is too limited to allow for a definitive determination.

- The presence of similar and different characteristics precludes a determination of common origin.
- The quality of the known or questioned samples precludes any determination.

## **Machine Copies – Class Characteristic**

### **Positive**

Sufficient class characteristics are present to determine that the documents were produced by the same class of machine, or any other class of machines producing the same class of characteristics.

### **Negative**

Sufficient dissimilar class characteristics exist to exclude the possibility of common source.

### **Inconclusive**

- The exhibit provided for determination is too limited to allow a definitive determination.
- The presence of similar and different characteristics precludes a determination of common origin.
- The quality of the known or questioned samples precludes any determination.
- Overlapping characteristics are present which may interfere with the examination.

## **Machine Copies – Individual Characteristic**

### **Positive**

Sufficient individual characteristics are present to determine that the documents were produced by the same machine.

### **Negative**

Sufficient dissimilar individual characteristics exist to exclude the possibility of common source.

### **Inconclusive**

- The exhibit provided for comparison is too limited to allow for a definitive determination.
- The presence of similar and different characteristics precludes a determination of common origin.
- The quality of the known or questioned samples precludes any determination.

## **Robbery Notes / Criminal Letters**

### **Positive**

The evidence was searched through the current [Agency] (robbery note/criminal letter) database. As of (insert date) the following cases including the current submission may be associated to a common source. (Insert chart with case information.) (Insert definition/qualifier for “association.”)



**Negative**

The evidence was searched through the current [Agency] (robbery note/criminal letter) database. As of (insert date) this evidence cannot be associated with any previously submitted case.

**Inconclusive**

N/A

**Other: Handwriting / Signature**

At most, 9 levels of opinions/conclusions will be used for handwriting analysis.

**Identification**

The (questioned sample) was **written by** the author (insert name) of the known writing samples.

**Highly Probable**

It is **highly probable** that the (questioned sample) was written by the author (insert name) of the known writing samples. A qualifier(s) will be inserted as to the limitations.

**Probable**

The (questioned sample) was **probably/probably may have been** written by the author (insert name) of the known writing samples. A qualifier(s) will be inserted as to the limitations.

**Indications**

There are **indications** that the (questioned sample) **was written/may have been written** by the author (insert name) of the known writing samples. A qualifier(s) will be inserted as to the limitations.

**No Conclusion**

No conclusion can be made. A qualifier(s) will be inserted as to the limitations.

**Indications Did Not**

There are **indications** that the (questioned sample) **was not written/may not have been written** by the author (insert name) of the known writing samples. A qualifier(s) will be inserted as to the limitations.

**Probably Did Not**

The (questioned sample) was **probably not/probably may not have been written** by the author (insert name) of the known writing samples. A qualifier(s) will be inserted as to the limitations.

**High Probability Did Not**

There is a **high probability** that the (questioned samples) were not written by the author (insert name) of the known writing samples. A qualifier(s) will be inserted as to the limitations.

**Elimination**

The (questioned sample) was not written by the author (insert name) of the known writing samples.

## **Project Area III: Standardized Terms & Definitions**

### **Alteration**

A modification made to a document by physical, chemical or mechanical means including, but not limited to, obliterations, additions, overwritings, or erasures.

### **Association**

“Association to a common source” – connection between two or more questioned documents which exhibit similarities in verbiage, letter formation, arrangement, alignment or other individual feature.

### **Character**

Any language symbol i.e. letter, numeral, punctuation mark or other sign.

### **Characteristic**

A feature, quality, attribute or property of writing

### **Class Characteristic**

One that is common to a group.

### **Common Origin (Common Source)**

Belonging to or shared by two or more people, groups or object(s).

### **ESDA (Electrostatic Detection Apparatus)**

The acronym for the instrument used to visualize paper fiber disturbances (for example, indentations, erasures, typewritten material/lift off).

### **Handwriting / Signature**

Handwriting – handwriting executed by one’s hand as distinguished from printscript, printing or typing since the letters and words are for the most part joined together. Signature – inscribed name of a writer, or a symbol representing his name whether written or one authorized to affix his signature.

### **Handwriting Opinions**

- **Was written** – This is the highest degree of confidence expressed by document examiners in handwriting comparisons. The examiner has no reservations whatever, and although prohibited from using the word “fact,” the examiner is certain, based on evidence contained in the handwriting, that the writer of the known material actually wrote the writing in question.

- **Strong probability (highly probable, very probably)** – The evidence is very persuasive, yet some critical feature or quality is missing so that an *identification* is not in order; however, the examiner is virtually certain that the questioned and known writings were written by the same individual.
- **Probable / Probably may have** – The evidence contained in the handwriting points rather strongly toward the questioned and known writings having been written by the same individual; however, it falls short of the “virtually certain” degree of confidence.
- **Indications / Indications may have (evidence to suggest)** – A body of writing has few features which are of significance for handwriting comparison purposes, but those features are in agreement with another body of writing.
- **No conclusion (totally inconclusive, totally indeterminable)** – This is the zero point of the confidence scale. It is used when there are significantly limiting factors such as disguise in the questioned and/or known writing or a lack of comparable writing and the examiner does not have even a leaning one way or another.
- **Indications may not have (evidence to suggest)** – A body of writing has few features which are of significance for handwriting comparison purposes, but those features are dissimilar with another body of writing.
- **Probably did not / Probably may not have** – The evidence points rather strongly against the questioned and known writings having been written by the same individual, however, the evidence is not quite up to the “virtually certain” range.
- **Strong probability did not** – The evidence is very persuasive, yet some critical feature or quality is missing so that an *elimination* is not in order; however, the examiner is virtually certain that the questioned and known writings were not written by the same individual.
- **Was not written** – This is the highest degree of confidence expressed by document examiners in handwriting comparisons. The examiner has no reservations whatever, and although prohibited from using the word “fact,” the examiner is certain, based on evidence contained in the handwriting, that the questioned and known writings were not written by the same individual.

### **Indentations / Indented Impressions**

Latent or visible impressions (a mark left/caused by pressure) in paper or other media.

### **Individual Characteristic**

One that is highly personal or peculiar and is unlikely to occur in other instances.

**Impact Printing Process**

Type of printing process produced by a device that strikes the ribbon and paper to form a character.

**Ink**

A colored fluid or viscous marking material used for writing or printing.

**Known**

Exemplar, of established origin associated with the matter under investigation.

**Machine Copy (Photocopy)**

A reproduction of a document made on paper by any office or commercial system.

**Non-Impact Printing Process**

Type of printing process produced by a device that does not strike a ribbon to form a character.

**Paper**

The material that is used in the form of sheets for writing or printing purposes.

**Physical Match**

Optical and/or physical realignment of fractured evidence.

**Questioned**

Associated with the matter under investigation about which there is some question, including, but not limited to, whether the questioned and known items have a common origin.

**Significant Difference**

Fundamental difference, an individualizing characteristic that is structurally divergent between handwritten items, that is outside the range of variation of the writer, and that cannot be reasonably explained.

**Significant Similarity**

An individualizing characteristic in common between two or more handwritten items.

**Robbery Notes / Criminal Letters**

See Association.

**Typewriter**

A machine for writing in characters similar to those produced by printer's type by means of keyboard-operated types striking a ribbon to transfer ink or carbon impressions onto the paper.

**Visual**

Of or relating to seeing or sight; seen or able to be seen by the eye; attained by sight

**VSC (Video Spectral Comparator)**

The acronym for the instrument used in viewing documents using a high resolution camera, range of viewing filters, multiple illumination sources to detect irregularities on questioned documents.

**Writing Instrument / Writing Implement**

An instrument used to apply ink, graphite, paint or another substance to paper or some surface.

# **Toxicology Report Standardization Materials**

## **Project Area I: Standardized Report Components**

1. Unique case identifier on each page of report (such as lab number)
2. Title of the report (such as “report of laboratory analysis”)
3. Identification of the laboratory
4. Submitting Agency Info or at a minimum submitting agency
5. List or explanation of items examined
6. General indication of methodology utilized
7. Results/conclusions
8. Date report issued
9. Signature and title of examiner (or electronic equivalent)
10. Pagination of the report (example page 1 of 2 etc.)
11. Statement regarding the report does not constitute the entire case file or equivalent
12. Statement that definitions of terms used in the report can be located at the DCJS website and if applicable on the laboratory website or attached to report

## **Additional Discipline Specific Report Components:**

13. Unique case/sample identifier on each page
14. Name of subject/defendant/victim/suspect/decedent
15. Date submitted to or received by laboratory
16. Samples submitted for toxicology
17. Any positive ethanol result for a Vehicle and Traffic case must include an uncertainty of measurement statement (using  $k = 3$  standard deviations, 99.7% level of confidence).
18. Forensically significant results that have not been confirmed will be clearly indicated as such.
19. Where test results obtained from another laboratory are included in the report, the name of the reference laboratory must be clearly stated.
20. When the contents of a tablet or capsule have been identified by a visual comparison only, the report must reflect that and must indicate that an analytical confirmation was not performed.



## **Project Area II: Standardized Report Language/Statements**

Below is a list of standardized report language/statements. Not all laboratories will use these. These definitions refer only to use in a written report, and may have different meanings and interpretations when used in the case file material. They should be defined in the laboratory's Standard Operating Procedure Manual (SOPM). They may also be defined on the report itself, or may be posted on the laboratory's website. If using a website, care should be exercised to ensure that the statements are current. If a laboratory uses other unique or infrequent terminology (example: no result, presumptive positive, consistent with) then those terms should be defined in its report.

Due to the comprehensive nature of toxicology testing, it is not necessary to include the scope of testing on toxicology reports.

### **Positive/Present**

Meets the laboratory's criteria for reporting the presence of a particular analyte or class of compounds as defined in the laboratory's SOPM.

### **Detected**

Meets the laboratory's criteria for reporting the presence of a particular analyte or class of compounds as defined in the laboratory's SOPM. Differs from the term "positive" only in the context in which it is used.

### **Negative**

No drug(s) identified within the scope of the testing method used and at the level of sensitivity of the method at the time the analysis was performed OR did not meet the criteria for reporting a positive as defined in the laboratory's SOPM. Used in the reporting of class screens such as immunoassays or screens that encompass large numbers of drugs.

### **None / Not Detected**

No drug(s) identified within the scope of the testing method used and at the level of sensitivity of the method at the time the analysis was performed, OR did not meet the criteria for reporting a positive as defined in the laboratory's SOPM. Differs from the term "negative" only in the context in which it is used. Used in the reporting of results from quantitative analyses or screens with lists of analytes specifically tested for.

### **Confirmed**

A second test was performed on a separate aliquot or sample using either two different methods or having at least one method that has sufficient specificity for definitive identification.

**Confirmed By History**

A drug has been identified using a method with sufficient specificity for definitive identification and corroborated through information contained in a pharmacy, medical or investigative record.

**Unconfirmed**

Confirmatory analysis was not performed.

**Unsuitable for Analysis**

*Specimen related:*

Cannot perform or complete the analysis due to the condition of the specimen (e.g., clotted, decomposed, oily, or improper, as in serum for COHb).

*Analysis related:*

Low internal standard, interference, ion ratio failure

**Inconclusive**

Testing was performed, but unable to obtain a valid result.

**Interference**

Testing was performed, but the laboratory was unable to obtain valid results due to the presence of other substances.

## **Project Area III: Standardized Terms & Definitions**

Abbreviations for analytical methods used:

1. **GC** – Gas Chromatography
2. **FID** – Flame Ionization Detection
3. **MS** – Mass Spectrometry
4. **LC** – Liquid Chromatography
5. **HPLC** – High Performance (formerly High Pressure) Liquid Chromatography
6. **DAD** – Diode Array Detection
7. **FTIR** – Fourier Transform Infrared Spectroscopy
8. **TLC** – Thin Layer Chromatography
9. **IR** – Infrared Spectroscopy
10. **UV/Vis** – Ultraviolet/Visual Spectroscopy
11. **HS** – Headspace
12. **IA** – Immunoassay
13. **NPD** – Nitrogen Phosphorus Detection
14. **ECD** – Electron Capture Detection
15. **AA** – Atomic Absorption Spectrophotometry
16. **TOF** – Time of Flight
17. **CT** – Color Test
18. **CA** – Chemistry Analyzer

Analytical instruments that use multiple technologies in tandem are indicated by through a combination of the abbreviations listed above, for example gas chromatography/mass spectrometry is abbreviated GCMS, GC/MS or GC-MS depending on the report software of the laboratory.

### **Preliminary Report**

A report issued prior to the completion of all toxicology testing. If used, this term indicates that further testing results can be expected in subsequent report(s).

### **Supplemental Report**

If used, this would indicate that other results have been previously reported.

# **Trace Evidence Report Standardization Materials**

**Project Area I: Standardized Report Components**

1. Unique case identifier on each page of report (such as lab number)
2. Title of the report (such as “report of laboratory analysis”)
3. Identification of the laboratory
4. Submitting Agency Info or at a minimum submitting agency
5. List or explanation of items examined
6. General indication of methodology utilized
7. Results/conclusions
8. Date report issued
9. Signature and title of examiner (or electronic equivalent)
10. Pagination of the report (example page 1 of 2 etc.)
11. Statement regarding the report does not constitute the entire case file or equivalent
12. Statement that definitions of terms used in the report can be located at the DCJS website and if applicable on the laboratory website or attached to report

**Additional Discipline Specific Report Components:**

13. Sample selection, if it occurs, clearly reflected in the report

## **Project Area II: Standardized Report Language/Statements**

The following consists of report writing examples representing typical results and report wording used in trace evidence examinations. Due to the range of materials and the varied condition and quality of evidence samples encountered, modifications to the following report wording should be utilized to more clearly convey results and conclusions of examinations.

Basis for conclusions will be included in the report.

When associations are made, the significance of the association shall be communicated clearly and qualified properly in the report (ISO/IEC 17025:2005 5.10.3.5).

### **Positive**

#### **Class Comparisons**

##### **Results**

- The questioned sample (Q) and known sample (K) are consistent...
- No discriminating differences were observed between the questioned sample (Q) and known sample (K).
- Include the actual techniques used in comparison and the properties examined.

##### **Conclusions**

The questioned sample could have originated from ... as represented by the known submitted *exemplar* or from another source exhibiting all of the same analyzed/measured characteristics.

#### **Impressions / Imprints**

##### **Results**

State what class characteristics are the same (or different) between the questioned and known and whether or not there are any corresponding individual characteristics.

##### **Conclusions**

- *Identification*: Q was made by K.
- *Inclusion*: Q could have been made by K or another item exhibiting the same characteristics.

## Physical Match / Physical Fit Examination

### Results

State that the torn/broken/cut/damaged edges were examined and compared for physical match/fit.

### Conclusions

Q and K were at one time joined together...

## Hair Comparisons

### Results

Known and questioned hairs exhibit similar visual and microscopic characteristics. The questioned hair appears/may be suitable/unsuitable for nuclear DNA and/or mitochondrial DNA analysis.

### Conclusions

The Q could have come from the K as represented by the submitted (analyzed) exemplar/reference hairs or from another individual/source whose hairs exhibit the same physical/microscopic characteristics.

## Chemical Identification / Explosives Identification

### *Identification:*

#### Results

State what tests you used and what you identified.

#### Conclusions

- *Identity of material* was identified. This is commonly found in (but not limited to).
- Example for bank dye packs: MAAQ was identified by instrumental analysis (GC/MS). This chemical is a component of dye packs.

### *Indication:*

#### Results

State tests used and chemicals indicated. Clarify not confirmed/identified.

#### Conclusions

- *Substance* was indicated based on... Include why an identification can't be made (where applicable).
- Example: Sample size was insufficient for instrumental analysis necessary for positive identification.

## **(General Physical Comparisons) Motor Vehicle Lamp Examination**

### **Results**

- Describe condition of bulb and filament.
- Item exhibits characteristics (list) consistent with (*hot shock, hot break*)...

### **Conclusions**

... indicating that the filament was “on” at time of damage.

## **Negative**

### **Class Comparisons**

#### **Results**

State that the items compared were different and state properties.

#### **Conclusions**

Based on comparisons to the submitted *exemplars*...

- Do not share a common origin/source (when you do not have a known)
- Could not have come from the source represented by K (when you have a known)

### **Impressions / Imprints**

#### **Elimination**

- State/explain differences observed.
- Q could not have been made by K.

### **Physical Match / Physical Fit Examination**

#### **Elimination**

- Q and K were not previously joined together... as represented by...
- If no physical match was established, state such and *refer to class comparison (if applicable)*.

### **Hair Comparisons**

#### **Results**

Known and questioned hairs exhibit dissimilar visual and microscopic characteristics/dissimilar physical characteristics/significant microscopic differences. The questioned hair appears/may be suitable/unsuitable for nuclear DNA and/or mitochondrial DNA analysis.



**Conclusions**

- The Q is not consistent with originating from the K as represented by the submitted (analyzed) exemplar/reference hairs - OR-
- The Q could not have come from the K as represented by the submitted (analyzed) exemplar/reference hairs.

**Chemical Identification / Explosives Identification**

State tests conducted.

**Conclusions**

*Requested substance* was not identified.

**(General Physical Comparisons) Motor Vehicle Lamp Examination****Results**

- Describe condition of bulb and filament.
- Item exhibits characteristics (list) consistent with (*cold shock, cold break*)...

**Conclusions**

... indicating that the filament was “off” at time of damage.

**Inconclusive****Class Comparisons**

State/explain the limiting factors of the exam:

- No conclusion could be reached due to (*state/explain limiting factors*).

**Impressions / Imprints**

State/explain what the limiting factors of the exam are, such as if there is

insufficient detail or if the pattern area is too small:

- No conclusion could be reached due to...

**Physical Match / Physical Fit Examination**

No physical match analysis could be performed due to (*state reasons*).

**Hair Comparisons**

Clearly communicate reasons a definitive conclusion could not be reached.

*For example* (but not limited to):

- Comparison of the questioned hair to the known standards revealed differences or comparison of the questioned hair to the known standards revealed similarities but the questioned hair lacks enough features for comparison and/or the known sample is insufficient.
- The questioned hair is not identifiable or is not suitable for reliable comparisons..... therefore no conclusion can be reached.
- No conclusion could be reached as to whether or not Q could have originated from a source as represented by K.
- The questioned hair appears/ may be suitable/ unsuitable for nuclear DNA and/or mitochondrial DNA analysis.

### **Chemical Identification / Explosives Identification**

State tests conducted, and reasons as to why inconclusive.

- No conclusion could be reached due to ...

### **General Physical Comparisons / Motor Vehicle Lamp Examination**

#### **Results**

Describe condition of bulb and filament.

- Item appears normal...

#### **Conclusions**

... indeterminate, no determination whether the filament was “on” or “off” at time of damage.

## **Disclaimers and Qualifying Statements**

### **Class Comparisons** (*where applicable*)

Include limiting factors, such as size, and state that they preclude further testing which can provide additional information.

#### **For mass produced items:**

Because mass produced items (case dependent, i.e., textile fibers) are mass produced, it is not possible to state that a fiber originated from a particular textile source to the exclusion of all other materials composed of fibers which exhibit the same (applicable, i.e., chemical and optical) properties.

#### **For blue denim and white cotton fibers:**

If no further analysis was warranted: These fibers are ubiquitous and have limited forensic value and therefore no further analysis was performed

**For plastic bags (where applicable):**

It was concluded that the bags were made consecutively, therefore it is possible, but cannot be conclusively determined that the bags came from the same physical package. This statement may be part of class comparison results for plastic bags.

**For glass:**

Elemental analysis (which is not available at this laboratory) could provide additional discrimination.

**Impressions / Imprints**

- Qualify basis for results. Listing the characteristics is sometimes desirable (i.e., the same design, spacing) It can then be stated why a stronger conclusion was not made.
- No distinguishable difference in tread pattern, however, the lack of (state limiting factors i.e.: lack of individual characteristics observed) precludes a stronger association.
- X corresponding individual characteristics (or other features) increase the value of the comparison.

**Physical Match / Physical Fit Examination**

N/A

**Hair Comparisons**

It should be noted that microscopic hair comparisons are not a means of absolute personal identification or individualization. DNA could give a more conclusive result than microscopic comparison alone.

*Optional Statement* (if no references are submitted): Additional information could be provided by a combination of microscopic comparison followed by DNA analysis.

*The following qualifying statement will be added when racial characterizations are made based on microscopic hair examinations:*  
It should be noted that racial classifications of hairs are based on microscopic characteristics which are typically observed in hairs from individuals of a given racial group, and these classifications may or may not correspond to an individual's racial origin or self-identification.

### **Motor Vehicle Lamp Examination**

For hot shock: It is not possible to determine if filament was damaged at time of collision.

### **Other: Database Inquiry**

- State database used, such as PDQ, Tread Design Guides.
- State limitations (*i.e.: List is not all-inclusive, do not limit search to items on list...*)
- Specify that information is investigative and not an identification.
- If further analysis is required, state that samples for comparison purposes would have to be submitted for a more definitive conclusion.

## **Project Area III: Standardized Terms & Definitions**

### **Class**

A group, set or kind marked by common attributes or a common attribute. (ASTM E1732-12)

### **Class Characteristics**

The attributes that establish membership in a class. (ASTM E1732-12)

### **Consistent**

No significant differences are discernable between two objects with respect to class characteristics (size, shape, dimensions, and physical properties and composition). Items share sufficient similarity in observed characteristics such that they could not be distinguished from sharing a common source. Due to the mass manufacturing process, items with indistinguishable class characteristics cannot be positively identified as sharing common origin without the addition of sufficient identifying characteristics.

### **Disclaimer**

Limitation of the examination/technique/science.

### **Discriminating Difference**

A feature that serves to exclude two items from sharing a common source.

### **Identification**

#### **1. Physical Comparison**

A positive association of a questioned to a known item to the exclusion of all others.

#### **2. Chemical Analysis**

Analysis conducted confirms presence of a material.

### **Indication**

The analysis conducted suggests a material/condition is present, but is not sufficient for identification / a definitive conclusion.

### **Individual Characteristic**

A randomly acquired characteristic that contributes to the uniqueness of an item.

### **Qualifying Statement**

Refers to analysis / comparison in case. May strengthen or weaken the association.