INDIANA STATE POLICE LABORATORY DIVISION

PHYSICAL EVIDENCE BULLETIN

LATENT PRINTS

There are limits on the information that can be obtained from latent print examinations. The identification of a print on an object to a specific individual proves only that the person touched the object at some point in time. The analyst cannot determine under what circumstances a print was placed on an object, nor can they determine how long a print has been on an item. It is not possible to determine sex, age, or race from a latent print. Failure to develop an individual's latent prints on evidence does not prove that the person has not touched the evidence, as there are many reasons why identifiable latent prints are not always left behind.

A. Preservation of Evidence

1. It is of the utmost importance to protect latent print evidence from careless handling and improper packaging that may damage latent prints and render them unsuitable for comparison. When feasible, it is recommended to fume non-porous items with superglue prior to laboratory submission to help stabilize any possible latent prints of value during transport. This practice helps to yield better quality latent prints which can lead to more identifications.

2. When articles of evidentiary value are to be submitted for latent print processing, they should be handled as little as possible. These articles should be touched in areas least likely to retain identifiable latent prints, such as where the surface is of rough texture or on the edges or corners.

3. While wearing gloves or using a handkerchief is highly recommended when picking up items of evidence, any unnecessary contact should be avoided. Although this method of handling evidence should prevent leaving additional latent prints on an item, the gloves or cloth used may destroy any latent prints that were originally present unless great care is exercised.

   CAUTION — It is possible to sweat through gloves and deposit latent prints while wearing disposable gloves (e.g. latex, nitrile). Disposable

gloves can also leave deposits that can interfere with latent print development when certain development techniques are used.

4. When packaging evidence, care should be taken to prevent damage to any latent prints. Sealing in a paper bag, cardboard box, or an envelope are acceptable ways of securing evidence. A plastic bag should not be used as a packaging container.

   Note: Tape with exposed adhesive surfaces should be placed on plastic or wax paper, and then placed in a cardboard box. If a cardboard box is not available, a paper bag may be used.

5. If an item will be submitted for both drug and fingerprint analysis, the drug evidence (e.g. powder, tablets, vegetation) and the container (e.g. paper bag, plastic bag, box) shall be separated prior to submission to the laboratory. This separated evidence shall be packaged and submitted as individual sub-items (See PEB-01 *Submission of Drugs/Controlled Substances*).

6. Due to extremely low success rates, the Laboratory will not examine cartridges or cartridge cases for the presence of fingerprints except in extenuating circumstances with the approval of the Laboratory Manager or Latent Print Unit Supervisor.

7. Evidence bearing latent print(s) that cannot be removed from the scene for submission to the laboratory should be photographed with and without a scale in the image prior to lifting.

8. Lifted prints should be placed on a backer which will contrast with the color of powder used. The use of clear backed fingerprint lifts and the use of white or fluorescent powders are strongly discouraged.

B. Digital Photography of Latent Prints

When latent prints are photographed for comparison purposes using a digital camera the following special considerations should be addressed.

1. A scale should always be included in the photograph.

2. If possible, the camera should be set at Aperture Priority (A) to control the depth of field when taking comparison quality photographs. A tripod should be used. If a tripod cannot be used, then the shutter speed should be set at 1/60 of a second to prevent blurriness from movement.

   a. For flat surfaces, a smaller f-stop number (f/2.4 or f/4) is recommended.

   b. For curved/rounded surfaces, a larger f-stop number (at least f/16 or f/22) is recommended.

3. Images should be captured at the highest resolution setting available on the camera, and every effort should be made to achieve a minimum resolution of 1000 pixels per inch (ppi).

    a. When using a digital Single Lens Reflex (SLR) camera with interchangeable lenses, 1000 ppi resolution should be easily obtained by filling the entire frame with the latent print to be photographed (include a scale).

    b. A larger image, such as a palm print or foot print, may need to be photographed in sections to achieve a resolution of 1000 ppi.

    Note: Check your camera specifications for accurate resolution.

4. Images should be captured, stored, and transmitted without compression or with lossless compression.

    a. Examples of common file formats that meet this requirement are TIFF, RAW, and BMP. TIFF is the preferred file format for submission of latent print digital images to the laboratory for examination.

    b. When an image is captured in a RAW format (such as NEF), it may be necessary to convert the file to TIFF or BMP format prior to submission. The laboratory may not have the capability to view that particular RAW format.

    c. JPG (jpeg) is a compression file format which loses data that can result in pixels being altered in the image. Therefore, JPG should not be used to capture a latent print image for comparison.

5. Agencies may have to prove that the digital images have not been altered prior to submission to the laboratory. Agencies must have adequate policies and documentation procedures in place to meet this requirement.

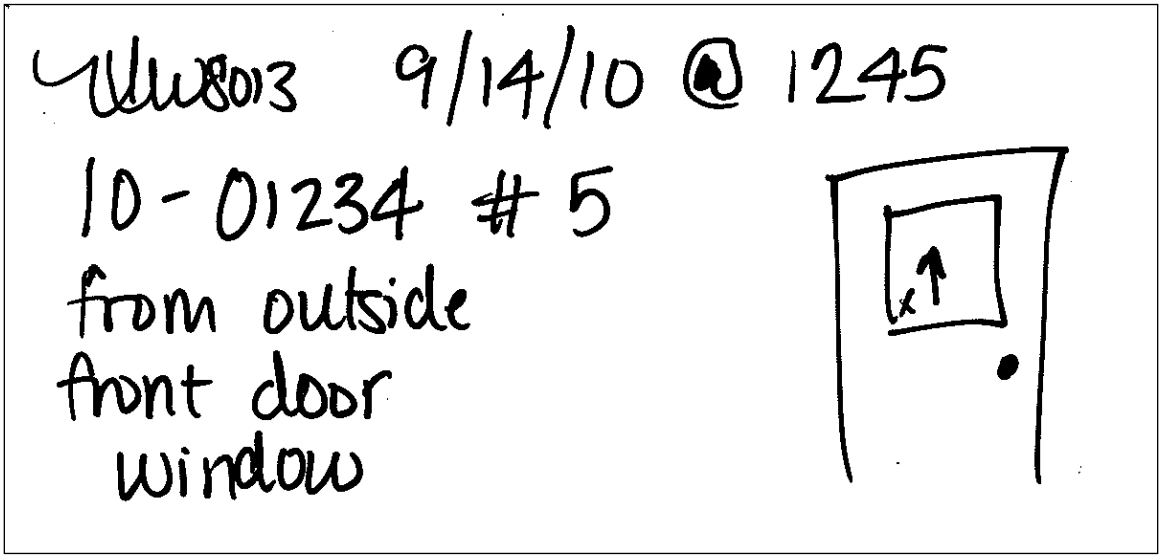
6. If there are any questions as to whether your digital camera can achieve 1000 ppi in an uncompressed format, you should contact the Latent Print Unit at an Indiana State Police (ISP) Regional Laboratory for evaluation of your camera.

C. Marking of Evidence

1. The outside packaging of all evidence shall be marked with the contributing agency's name, case number, and item number. The container shall be properly sealed and the initials of the person who sealed the evidence shall be written so they are partially on the seal and partially on the container. When possible, the container should be marked prior to placing the evidence inside to prevent damage to latent prints during the marking process.

2. Latent prints that have been lifted shall be marked on the back of the lifter and sealed in a marked envelope.

   a. **Labeling Lifts** – The following information should be included on the back of each lift:
      - Agency case number;
      - Agency Item number;
      - Date the evidence was collected;
      - Written description of item (including inside or outside surface location);
      - Sketch of the item with the location of the print indicated;
      - Direction/orientation of the print on the object; and
      - Initials of the lifting officer.



D. **<u>Submission of Latent Print Evidence</u>**

1. Lifts, photographs, and/or items to be processed for latent prints should be submitted in person, electronically, or shipped by commercial delivery service with traceable shipping to the appropriate regional laboratory.

2. The number of pieces of evidence inside an item container should be listed on the description line on Request for Laboratory Examination form (629). For example, the item description should read, “Sealed manila envelope containing 7 lifts with latent prints” or “Electronically submitted digital images of latent prints, files DSC_0001 and DSC_0002.”

3. In investigations where there are suspects but no fingerprint exemplars submitted, the Latent Print Unit will attempt to locate exemplars in the Indiana State Police Archive. The most reliable method to locate exemplars in the Archive is to search by Indiana State Identification (SID) number. The SID number can be obtained through a criminal history report. If no SID number is provided, the suspects’ names and dates of birth will be used to search for

exemplars. The names of the individuals found through a search will be on the Certificate of Analysis.

4. In investigations where there are no known suspects, any fingerprints recovered should be delivered to a regional laboratory to determine suitability for entry into the ISP Automated Fingerprint Identification System (AFIS) and the Federal Bureau of Investigation's Next Generation Identification System (NGI). Any latent prints submitted for AFIS/NGI entry should be accompanied by elimination exemplars. If known, it is recommended to include the race, sex, and geographic area of a potential suspect for an AFIS/NGI search. Unless otherwise stated in the report, AFIS and NGI searches will not be limited geographically.

5. With the exception of electronic evidence, all items received by the laboratory for examination will be returned to the submitting agency. Electronic evidence and any images of latent prints captured by the analyst during examination will be maintained by the laboratory indefinitely in the designated image management and storage system.

E. Submission of Latent Print Evidence by Electronic Methods (email)

1. Electronic submission of latent print evidence is permitted through the department email address at esubmission@isp.in.gov or file sharing site as directed by Laboratory personnel. Electronic evidence may include scans of lifts, digital photographs, or exemplars.

2. All electronic evidence shall be accompanied by a Request for Laboratory Examination Form.

3. The potential for examination is directly related to the digital image quality; therefore the following minimum standards shall be met for electronic latent print evidence submissions. Any deviations in image quality require the approval of the Latent Print Unit Supervisor or designee.

4. Images should be captured, stored, and transmitted without compression or with lossless compression.

5. Examples of common file formats that meet this requirement are TIFF, RAW, and BMP. TIFF is the preferred file format for submission of latent print digital images to the laboratory for examination.

    a. Scans of lifts

        i. Areas of lifts with latent print impressions shall be scanned individually at a minimum of 1000 ppi.

        ii. Each lift shall be uniquely identified by the contributor, either by markings on the lift or by file name.

iii. For documentation, any markings on the backs of lifts should be scanned at a minimum of 300 ppi and shall be uniquely identified by the contributor to the scan of the front of the lift.

b. Exemplars

i. Exemplars shall be scanned at a minimum of 600 ppi.

ii. Each exemplar shall have the name of the individual they were taken from clearly visible on the scan.

iii. For documentation, any markings on the backs of exemplars should be scanned at a minimum of 300 ppi and shall be uniquely identified by the contributor to the scan of the front of the exemplar.

c. Digital Photographs

i. Digital photographs shall meet the 1000 ppi minimum requirement set forth in section B of this document and be uniquely identified by the contributor by file name.

All electronic items for comparison shall have their file names associated with an agency item number on the Request for Laboratory Examination Form and each item shall be described as electronically submitted. The Request for Laboratory Examination Form should have separate item numbers for latent impressions (lifts or digital photographs) and exemplars.

F. Additional Information Needed

1. Many times, evidence submitted for latent print examination will have additional requests for examination (e.g. Firearms, DNA, or Forensic Documents). If more than one examination is requested on an item of evidence, the Request for Laboratory Examination Form should indicate which examination is most important to the case. The analysts will then work with each other to conduct the examinations.

2. If evidence may have been exposed to adverse elements (e.g. heavy dew, rain, or snow), this should be noted on the Request for Laboratory Examination Form. This is very important, as it will aid the analyst in determining what type of procedure should be used in processing the evidence for latent prints.

3. If an item of evidence has been previously processed prior to submission to the laboratory (e.g. processed with powder, superglue fumed, processed with ninhydrin), please indicate this on the Request for Laboratory Examination Form. This will assist the analyst in determining what remaining processing should be used on the evidence item in the laboratory.

4. With authorization from the submitting agency, latent print comparison may be deferred. In the case of deferrals, the Latent Print Unit will work to

identify each person of interest one time. All other comparisons will be deferred until a time at which they are necessary and requested by the submitting agency (additional person of interest, court proceeding, etc.). All sufficient latent prints will be preserved for future comparison and evidence may be re-submitted at any time. In cases without known suspects, latent prints will be entered into AFIS until a person of interest is obtained.

G. Comparison Exemplars

1. If any suspects are known to the investigator, clear inked major case prints of the suspects should be submitted.
    a. Major case prints are the complete recording of all the ridge detail on the fingers, palms, sides of palms and fingers, and the tips of fingers. Each sheet of paper used to obtain the major case prints should be marked for identification. Additional assistance in taking major case prints may be obtained from an analyst in the Latent Print Unit or an ISP Crime Scene Investigator.

2. For elimination purposes, submit major case prints of any individuals who may have legitimately handled the evidence, whether it was before or after the crime was committed. Include major case prints of any investigators who may have touched the evidence. Elimination exemplars prevent the unnecessary entry of latent prints into AFIS.

3. Should the lifting officer accidently deposit his/her fingerprints on the edges of a lift, he/she should place an “X” across his/her fingerprints then mark with his/her initials.

4. If an original ten print card cannot be submitted as evidence, photocopies will be acceptable, provided the copies are clear.

5. Because major case prints can require several sheets of paper for one person, the major case prints for one person should be packaged as one item. Do not package major case prints of multiple persons as one item.

6. Fingerprint exemplars of different individuals should be packaged in separate envelopes and submitted as separate items.

H. Explanation of Certificate of Analysis

Results are most often reported out using a boilerplate wording along with a case specific table, including the comparison results, at the end of the report. The following are examples of the boilerplates reported on the Certificate of Analysis and what each result means:

1. The non-exemplar items listed above were examined for the presence of latent prints. No latent prints suitable for comparison purposes were developed or observed; therefore, no comparisons could be performed.

This means any latent prints developed or observed on the evidence were of too low quality for comparisons to be conducted.

2. All non-exemplar items listed above were examined for the presence of latent prints. All latent prints suitable for comparison purposes were preserved by digital imaging.

The latent prints suitable for comparison purposes were compared to any submitted exemplars listed above, any exemplars obtained from the Indiana State Police Archive, and any exemplars obtained as a result of searches in the Indiana State Police Automated Fingerprint Identification System (AFIS) and the Next Generation Identification System (NGI).

Any unidentified latent print of suitable quality was entered into AFIS and NGI. If a latent print was entered into AFIS and NGI with no identification made, you will be notified if an identification is made in the future.

Conclusions are based upon the friction ridge skin depicted in the exemplars; the names associated with the exemplars are reported below. An identification result is the determination by an examiner that both the unknown and known impressions are in agreement and contain sufficient friction ridge detail in sequence having detectable uniqueness so that the likelihood the impression was made by another source is so remote that it is considered as a practical impossibility. An inconclusive result is the determination by an examiner that there is neither sufficient agreement to identify, nor sufficient disagreement to exclude. In the event of an inconclusive result, clear and complete major case prints should be submitted for further comparison, unless otherwise noted. Please contact the reporting analyst with any questions regarding this case.

This means latent prints of value were developed and/or observed on the evidence and comparisons were conducted. Below is an example report table including different conclusions:

Examination Results:

Item 001 - No latents of value

Item 002 - Latent 002A / Not AFIS Quality
Comparison Results: Excluded from John Doe and Jane Doe

Item 002 - Latent 002B / Not AFIS Quality
Comparison Results: Inconclusive to John Doe and Jane Doe

Item 002 - Latent 002C
Comparison Results: Identified to Jane Doe

Item 002 - Latent 002D / Not AFIS Quality
Comparison Results: Inconclusive to Jane Doe / Excluded from John Doe

---

3. All non-exemplar items listed above were previously examined for the presence of latent prints. All latent prints suitable for comparison purposes were preserved by digital imaging.

As the result of a previous entry in the Indiana State Police Automated Fingerprint Identification System (AFIS) or the Next Generation Identification System (NGI), the unidentified latent prints suitable for comparison purposes were compared to exemplars obtained from the Indiana State Police Archive or the NGI database.

Conclusions are based upon the friction ridge skin depicted in the exemplars; the names associated with the exemplars are reported below. An identification result is the determination by an examiner that both the unknown and known impressions are in agreement and contain sufficient friction ridge detail in sequence having detectable uniqueness so that the likelihood the impression was made by another source is so remote that it is considered as a practical impossibility. An inconclusive result is the determination by an examiner that there is neither sufficient agreement to identify, nor sufficient disagreement to exclude. In the event of an inconclusive result, clear and complete major case prints should be submitted for further comparison, unless otherwise noted. Please contact the reporting analyst with any questions regarding this case.

This means that the previously entered latent print(s) came back with a possible hit in the database; whether it be a latent to latent inquiry (LLI) or a tenprint to latent inquiry (TLI).

4. All non-exemplar items listed above were previously examined for the presence of latent prints. All latent prints suitable for comparison purposes were preserved by digital imaging.

The unidentified latent prints suitable for comparison purposes were compared to additional submitted exemplars listed above and any additional exemplars obtained from the Indiana State Police Archive.

Conclusions are based upon the friction ridge skin depicted in the exemplars; the names associated with the exemplars are reported below. An identification result is the determination by an examiner that both the unknown and known impressions are in agreement and contain sufficient friction ridge detail in sequence having detectable uniqueness so that the likelihood the impression was made by another source is so remote that it is considered as a practical impossibility. An inconclusive result is the determination by an examiner that there is neither sufficient agreement to identify, nor sufficient disagreement to exclude. In the event of an inconclusive result, clear and complete major case prints should be submitted for further comparison, unless otherwise noted. Please contact the reporting analyst with any questions regarding this case.

This means that there were additional exemplars submitted or suspect/victim information given to conduct comparisons on previously developed or observed latent prints. A table similar to the one above (#2) would be included in the Certificate of Analysis.

5. All post-mortem items listed above were examined for the presence of impressions or areas suitable for obtaining impressions. All impressions suitable for comparison purposes were preserved by digital imaging.

The post-mortem impressions suitable for comparison purposes were compared to any submitted exemplars listed above, any exemplars obtained from the Indiana State Police Archive, and any exemplars obtained as a result of searches in the Indiana State Police Automated Fingerprint Identification System (AFIS) and the Next Generation Identification System (NGI).

Any unidentified impressions of suitable quality were entered into AFIS and NGI. If impressions were entered into AFIS and NGI with no identification made, you will be notified if an identification is made in the future.

Conclusions are based upon the friction ridge skin depicted in the exemplars; the names associated with the exemplars are reported below. An identification result is the determination by an examiner that both the unknown and known impressions are in agreement and contain sufficient friction ridge detail in sequence having detectable uniqueness so that the likelihood the impression was made by another source is so remote that it is considered as a practical impossibility. An inconclusive result is the determination by an examiner that there is neither sufficient agreement to identify, nor sufficient disagreement to exclude. In the event of an inconclusive result, clear and complete major case prints should be submitted for further comparison, unless otherwise noted. Please contact the reporting analyst with any questions regarding this case.

This means that the impressions submitted were considered post mortem and comparisons were conducted to submitted exemplars or exemplars from the database.

I. Explanation of Conclusions

Below are examples of conclusions that may be reported on the Certificate of Analysis and what each conclusion means:

1. The print was excluded...
   This means that the analyst has determined that the latent print was not made by the area of friction ridge skin depicted in the known exemplars.

2. The print was identified...
   This means that the analyst has determined that the latent print and the known exemplar were made by the same individual/source.

3. The print was inconclusive...
   This means the examiner determined that there is neither sufficient agreement to identify, nor sufficient disagreement to exclude.

J. Cases with CODIS Hits

For the purpose of prioritizing cases with no individual identified, the following policy will be followed. In cases with matches obtained from a Combined DNA

Index System (CODIS) database search and with no additional listed suspects, any open latent print examination requests may be administratively withdrawn by the ISP Laboratory. When a withdraw occurs, notification shall be made in a written trackable communication and a Certificate of Analysis shall be issued regarding the withdrawn request. If the latent print request is necessary, the investigator may resubmit the request at any time; either in writing, by phone, or by resubmitting the evidence.

K. RUVIS and LASER/Alternate Light Source Call Out

The ISP Laboratory currently has portable Reflective Ultra Violet Imaging System (RUVIS) and LASER/Alternate Light Sources in all four regional laboratories that can be taken directly to crime scenes to assist in searching for latent prints and/or foreign fibers. These light sources are available to any police agency in Indiana 24 hours a day. A light source may be requested for any major crime scene, such as, but not limited to, homicides or sexual assaults. A light source may be requested Monday through Friday, 8:00 a.m. to 4:30 p.m., by calling the Regional Laboratory Manager, or after normal business hours by contacting the nearest ISP District for a Crime Scene Investigator.

For questions or consultation, contact the appropriate Regional Laboratory or the nearest ISP District for a Crime Scene Investigator.

Evansville Regional Laboratory
19411 Highway 41 North
Evansville, IN 47725
(812) 867-3157
District 35-CSI: (800) 852-3970

Fort Wayne Regional Laboratory
5811 Ellison Road
Fort Wayne, IN 46804
(260) 436-7522
District 22-CSI: (800) 552-0976

Indianapolis Regional Laboratory
550 West 16th Street, Suite C
Indianapolis, IN 46202
(317) 921-5300 or (866) 855-2840
District 52-CSI: (800) 582-8440

Lowell Regional Laboratory
1550 East 181st Avenue
Lowell, IN 46356
(219) 696-1835
District 13-CSI: (800) 552-8917