

- 9.7.1.1 If significant individualizing characteristics are common to both, such as indented writing, paper clip marks, etc., it may be concluded that the papers were at one time attached or in contact, or, if appropriate, from the same pad.

Based on indented writing common to both the Item X questioned sheet and the Item Y known sheet(s) it is concluded that Item X and Item Y were at one time in contact.

- 9.7.1.2 If significant manufacturing characteristics are common to both, and there are no significant differences, it may be concluded that the papers share a common manufacturing source. When using this conclusion language should be included explaining the significance and limits of the association.

The Item X questioned sheet and the Item Y known sheet(s) share a common manufacturing source; however it could not be conclusively determined whether (or not) the questioned and known sheets share a common post-manufacturing source, such as coming from the same pad, stack, or ream.

- 9.7.1.3 If significant differences are found between the questioned and known sheets it may be concluded that the two do not share a common manufacturing source.

The Item X questioned sheet and the Item Y known sheet(s) do not share a common manufacturing source.

- 9.7.1.4 When limitations prevent an identification (association) or elimination (disassociation), inconclusive results with appropriate explanation should be reported.

It could not be conclusively determined whether (or not) the Item X questioned sheet and the Item Y known sheet(s) share a common source due to the absence of individualizing characteristics.

Note: There may be similarities or differences with inconclusive results, and it may be appropriate to include this information in the report.

The Item X questioned sheet and the Item Y known sheet(s) share similar class characteristics, however due to the lack of individualizing characteristics it could not be conclusively determined whether (or not) Items X and Y share a common source or origin.

9.7.2 Torn Paper Comparisons

- 9.7.2.1 If significant individualizing characteristics in common are present along the torn edges of both fragments, and there are no significant differences, it may be concluded that both fragments were at one time part of the same sheet.

The Item X fragment and the Item Y fragment were at one time joined and part of the same sheet.

- 9.7.2.2 If significant differences are present along the torn edges of both fragments, it may be concluded that the fragments are not from the same original sheet.

The Item X fragment and the Item Y fragment were not at any time part of the same sheet.

- 9.7.2.3 When limitations prevent an identification (association) or elimination (disassociation), inconclusive results with appropriate explanation should be reported.

It could not be determined whether (or not) the Item X fragment and the Item Y fragment were part of the same original sheet. Missing portions of the original sheet was a significant limiting factor during the comparison.

Note: There may be similarities or differences with inconclusive results, and it may be appropriate to include this information in the report.

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10 INK EXAMINATIONS

10.1 Objective

To nondestructively examine inks on documents to determine whether they are different from or similar to other inks, or if they originated from a specific writing instrument.

10.2 References

- Conway, James V.P.; Evidential Documents; Charles C. Thomas Publisher, 1959
- Harrison, Wilson R.; Suspect Documents (Second Edition); Sweet & Maxwell Ltd., 1966
- Ellen, David; The Scientific Examination of Documents (Second Edition); Taylor & Francis Ltd., 1997
- Hilton, Ordway; Scientific Examination of Questioned Documents (Revised Edition); Elsevier, 1982
- Saferstein, Richard; Criminalistics, An Introduction to Forensic Science; Prentice-Hall Inc., 1977
- Brunelle, Richard L. & Reed, Robert W.; Forensic Examination of Ink and Paper; Charles C. Thomas Publisher, 1984
- Richards, G.B., “The Application of Electronic Video Techniques to Infrared and Ultraviolet Examinations”, JFS, Vol. 22, No. 1, 1977
- Foster & Freeman Ltd.; VSC2000 and VSC6000 Instruction Manuals

10.3 Equipment

- Light source
- Stereo microscope
- Magnifier
- VSC2000 and VSC6000 Video Spectral Comparators

10.4 Safety Measures

Precautionary measures specified in ¶ 1.3 when working with a UV light source.

10.5 Interferences

- 10.5.1 Differences detected in the optical characteristics (e.g., IR absorbance, luminescence) of inks on different documents (substrates) may not be of any significance, since differences in substrates may affect the optical properties of the inks.
- 10.5.2 Storage conditions (e.g., exposure to light, heat, moisture) and any prior processing with chemicals (e.g., latent print processing) can affect the optical characteristics of inks during certain tests. Other factors that can affect the optical characteristics include the length of time the ink has been on the paper, and the concentration (density) of the written entry.
- 10.5.3 Inks having the same class characteristics that appear on the same document and display similar optical properties may actually be different inks.

10.6 Procedures

- 10.6.1 These procedures may not address any uncommon or unusual circumstances that may be encountered during examinations.
- 10.6.2 The procedures outlined below may not be possible or necessary in every case. The order may vary depending on the case.
- 10.6.3 Compare the class characteristics of the inks (e.g., color, type). If the examination involves a comparison of an inked entry on a document to a writing instrument, a test mark must be made on that same document. Evaluate the significance of any similarities or dissimilarities.

- 10.6.4 Determine if the inked entries being compared were all made with the same type of writing instrument.
- 10.6.5 Determine if there are any writing instrument defects (e.g., burr striations, nib characteristics), and if they are consistent throughout the inked entries being compared.
- 10.6.6 Examine the inked entries with the VSC6000. Compare the results of the IR/UV absorbance, reflectance, and luminescent properties. Evaluate the significance of any similarities or dissimilarities.
- Note:** The VSC2000 may also be used, but only when the VSC6000 is unavailable. Although there will be situations where either instrument will yield adequate results, the VSC6000 has a broader range of capabilities and shall be the initial instrument of choice.
- 10.6.7 Consider the significance of observations in §§ 10.6.3 through 10.6.6, both individually and in combination, and form a conclusion within any appropriate limitations.

10.7 Reporting Conclusions

10.7.1 Ink to Ink Comparisons

- 10.7.1.1 If significant differences are found between two or more ink samples it may be concluded that the inks do not have a common origin.

The ink used to write the date entry on Item X is different from the ink used to write the signature entry on Item X.

or

The date and signature on Item X were written with different inks.

- 10.7.1.2 When the comparison of two or more ink samples reveals no significant differences, it may be concluded that non-destructive testing revealed no differences, or that non-destructive testing determined that both shared similar class characteristics. A conclusion of this type shall include language explaining the significance and limitations of the association.

Non-destructive examination of the ink used to write the date on Item X and the ink used to write the signature on Item X revealed no differences. However, the absence of individualizing characteristics in common prevents a conclusive determination regarding whether (or not) the inks share a common origin.

or

Non-destructive analysis of the ink used to write the date on Item X and the ink used to write the signature on Item X determined that both share similar class characteristics. However, it could not be conclusively determined whether (or not) the inks share a common origin due to the lack of individual characteristics.

- 10.7.1.3 When comparisons are significantly limited by interferences (e.g., problems with substrate, prior treatment with chemicals, charring, saturation, etc.) inconclusive results, with appropriate explanation, should be reported.

It could not be determined whether (or not) the ink from Item X and the ink from Item Y share a common source. The differences in the substrates of Items X and Y significantly limited the examination.

10.7.2 Ink to Writing Instrument Comparisons

- 10.7.2.1 If significant and reproducible individual characteristics (e.g., burr striations from a defective ball housing) are present, and there are no significant differences, it may be concluded that a particular writing instrument was used to prepare an entry.

The Item X ballpoint pen was used to prepare the entries on Item Y.

- 10.7.2.2 If significant differences are found it may be concluded that a particular writing instrument was not used to prepare an entry.

The Item X pen was not used to prepare the entries on Item Y.

- 10.7.2.3 When the comparison reveals no significant differences, it may be concluded that non-destructive testing revealed no differences, or that non-destructive testing determined that both shared similar class characteristics. A conclusion of this type shall include language explaining the significance and limitations of the association.

Non-destructive examination of the Item X pen and the entries on Item Y revealed no differences. However, the absence of individualizing characteristics in common prevents a conclusive determination regarding whether (or not) the Item X pen was used to prepare the entries on Item Y.

or

Non-destructive analysis of the Item X pen and the entries on Item Y determined that both share similar class characteristics. However, it could not be conclusively determined whether (or not) the Item X pen was used to prepare the entries on Item Y due to the lack of individual characteristics in common.

- 10.7.2.4 When comparisons are significantly limited by interferences (e.g., substrate problems, prior treatment with chemicals, charring, saturation, aged inks, dry pen) inconclusive results, with appropriate explanation, should be reported.

It could not be determined whether (or not) the Item X pen was used to prepare the entries on Item Y. The prior treatment of Item Y with ninhydrin significantly limited the examination.

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11 ALTERATIONS, OBLITERATIONS AND ERASURES EXAMS

11.1 Objective

To detect alterations to documents, and to decipher those entries which have been altered, obliterated, or erased.

11.2 References

- Conway, James V.P.; Evidential Documents; Charles C. Thomas Publisher, 1959
- Harrison, Wilson R.; Suspect Documents (Second Edition); Sweet & Maxwell Ltd., 1966
- Ellen, David; The Scientific Examination of Documents (Second Edition); Taylor & Francis Ltd., 1997
- Hilton, Ordway; Scientific Examination of Questioned Documents (Revised Edition); Elsevier, 1982
- Saferstein, Richard; Criminalistics, An Introduction to Forensic Science; Prentice-Hall Inc., 1977
- Hilton, Ordway; Detecting and Deciphering Erased Pencil Writing; Charles C. Thomas Publisher, 1991
- Brunelle, Richard L. & Reed, Robert W.; Forensic Examination of Ink and Paper; Charles C. Thomas Publisher, 1984
- Richards, G.B., "The Application of Electronic Video Techniques to Infrared and Ultraviolet Examinations, JFS, Vol. 22, No. 1, 1977
- Foster & Freeman Ltd.; ESDA Operating Instructions
- Foster & Freeman Ltd.; VSC2000 and VSC6000 Instruction Manuals

11.3 Equipment

- Stereo microscope
- Magnifier
- Light source of appropriate design for oblique lighting capability
- VSC2000 and VSC6000 Video Spectral Comparators
- UV light source
- Transmitted light box
- ESDA
- Typewriter test grids

11.4 Safety Measures

Precautionary measures specified in ¶ 1.3 when working with a UV light source. Precautionary measures due to the high voltage of the ESDA are contained in the Manufacturer's Operating Instructions Manual.

11.5 Procedures

- 11.5.1 The procedures outlined below may not be possible or necessary in every case. The order of procedures may also vary depending on the case. The nature of these type problems varies widely, and as a result the procedures appropriate to a given case will vary. What follows is a list of techniques commonly applied to this category of examination.
- 11.5.2 The procedures set forth in ¶ 10 (Ink Examinations) may be applicable to this type of problem, and should be reviewed if necessary.
- 11.5.3 Examine document(s) for any evidence of alteration (e.g., paper fiber disturbance, overwriting, opaquing fluid). Useful instruments might include microscope, side light, transmitted light box, ESDA, erasure detection powders, and typewriter test grids.
- 11.5.4 Compare the basic physical properties of the written entries, such as color and type (e.g., pencil, ballpoint or non-ballpoint). Evaluate the significance of any similarities or differences. If the entries are machine produced, establish the process used (e.g., typewriter).

- 11.5.5 Determine if the type (class) of writing instrument is consistent throughout the written entries. If machine produced, determine if there is consistency throughout, or there is evidence of a second machine (e.g., difference in font, spacing, process).
- 11.5.6 Determine if any writing instrument individualities (e.g., burr striation defects, nib characteristics) are present, and if they are consistent throughout the written entries. Evaluate the significance. If machine produced, determine the consistency of any defects or abnormalities.
- 11.5.7 Examine with long and short wave UV light, and evaluate the significance of the results.
- 11.5.8 Examine with the VSC6000. Evaluate the significance of results in the IR/UV absorbance, reflectance and luminescent properties.
- Note:** The VSC2000 may be used, but only when the VSC6000 is unavailable. Although there will be situations where either instrument will provide adequate results, the VSC6000 has a broader range of capabilities and shall be the initial instrument of choice.
- 11.5.9 Examine with laser or other type of alternate light source in conjunction with various filters (if available).
- 11.5.10 If possible, prepare a permanent record (photograph or similar type reproduction) of any significant results obtained.
- 11.5.11 If the obliteration involved the use of an opaquing fluid such as 'wite-out', and the original entry is not readily observable from the reverse side, solvents such as petroleum ether or 'Liquid Window' can be used to render the paper momentarily transparent so that the original entry can be observed.
- 11.5.11.1 Complete removal of the opaquing fluid by abrasion or through the use of solvents (eg. 'Turpentine') may be possible, but this is considered a destructive process, and should not be performed without the permission of the submitter or Commonwealth Attorney. Record photographs (or similar type reproduction) should be prepared prior to the initiation of any destructive process.
- 11.5.12 Consider the significance of observations in ¶¶ 11.5.2 through 11.5.11.1, both individually and in combination, and form a conclusion.

11.6 Reporting Conclusions

- 11.6.1 Conclusions will generally include the following types of information as appropriate.
- 11.6.2 If evidence of alteration was found (e.g., mechanical erasure, multiple inks).

Examination of Item X revealed sites of mechanical erasure.

or

Examination of Item X revealed no evidence of alteration.

- 11.6.3 The texts of any of any original entries that were deciphered or recovered.

Examination of Item X revealed an overwritten entry. The entry on Item X that currently reads '8' originally read '3'.

or

Examination of Item X revealed an overwritten entry in the area of the document that currently reads '8'. A printout depicting the original entry is included with this report.

or

Examination of Item X revealed an overwritten entry. Although the original entry could not be completely deciphered the entry that currently reads '8' appears to have originally read '3'.

or
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Examination of Item X revealed overwriting in the area that currently reads '8'. The overwriting is extensive, and the original entry could not be deciphered.

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12 CHARRED DOCUMENT EXAMINATIONS

12.1 Objective

To decipher texts on charred documents.

12.2 References

- Conway, James V.P.; Evidential Documents; Charles C. Thomas Publisher, 1959
- Harrison, Wilson R.; Suspect Documents (Second Edition); Sweet & Maxwell Ltd., 1966
- Ellen, David; The Scientific Examination of Documents (Second Edition); Taylor & Francis Ltd., 1997
- Hilton, Ordway; Scientific Examination of Questioned Documents (Revised Edition); Elsevier, 1982
- Saferstein, Richard; Criminalistics, An Introduction to Forensic Science; Prentice-Hall Inc., 1977
- Richards, G.B., "The Application of Electronic Video Techniques to Infrared and Ultraviolet Examinations", JFS, Vol. 22, No. 1, 1977
- Foster & Freeman Ltd.; VSC2000 and VSC6000 Instruction Manuals

12.3 Equipment

- Light source
- Stereo microscope
- magnifier
- UV light source
- VSC2000 and VSC6000 Video Spectral Comparators

12.4 Safety Measures

Precautionary measures specified in ¶ 1.3 when working with a UV light source.

12.5 Procedures

- 12.5.1 These procedures may not address all aspects of any uncommon or unusual circumstances that may be encountered during examinations.
- 12.5.2 The procedures outlined below may not be possible or necessary in every case.
- 12.5.3 Conduct examination in a low traffic area, relatively free of air currents.
- 12.5.4 If necessary, moisturize the document.
- 12.5.5 Conduct visual exam using natural and/or artificial lighting. Vary the angle at which the light reflects off the paper in an effort to contrast any text (e.g., handwriting, typewriting) against the charred background.
- 12.5.6 Conduct microscopic examination. If available, polarizing filters may be helpful.
- 12.5.7 Examine with UV light source (long and short wave).
- 12.5.8 Examine with the VSC6000. Evaluate the significance of results in the IR/UV absorbance, reflectance and luminescent properties.

Note: The VSC2000 may be used, but only when the VSC6000 is unavailable. Although there will be situations where either instrument will provide adequate results, the VSC6000 has a broader range of capabilities and shall be the initial instrument of choice.
- 12.5.9 Examine with laser or other type of alternate light source with various filters (if available).

12.5.10 If possible, prepare a permanent record (photograph or similar type reproduction) depicting any significant results obtained.

12.6 Reporting Conclusions

Conclusions will generally include any text that was deciphered or recovered.

Examination of Item X revealed material (handwritten, machine printed text, pictures, symbols, etc.) that appears to read (or depict).....

or

Examination of Item X revealed material (handwritten, machine printed text, pictures, symbols, etc.). Images of the recovered material are included with this report.

or

Examination of the Item X charred material did not result in the recovery of any written or printed text of any type.

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13 COUNTERFEIT DOCUMENT EXAMINATIONS

13.1 Objective

To determine if a particular document (e.g., birth certificate, car title) is a counterfeit reproduction.

13.2 References

- Ellen, David; The Scientific Examination of Documents (Second Edition); Taylor & Francis Ltd., 1997
- International Paper Company; Pocket Pal (graphic arts production handbook)
- New Zealand Police Document Examination Section; Printing Processes Manual
- Brunelle, Richard L. & Reed, Robert W.; Forensic Examination of Ink and Paper; Charles C. Thomas Publisher, 1984
- Richards, G.B., “The Application of Electronic Video Techniques to Infrared and Ultraviolet Examinations”, JFS, Vol. 22, No. 1, 1977
- Foster & Freeman Ltd.; VSC2000 and VSC6000 Instruction Manuals
- Dannerose Information Systems; DOYA IR Video Analyzer Instruction Manual

13.3 Equipment

- Stereo microscope
- Magnifier
- U.V. light source
- VSC2000 and VSC6000 Video Spectral Comparators
- Transmitted light box

13.4 Safety Measures

Precautionary measures specified in ¶ 1.3 when working with a UV light source.

13.5 Procedures

- 13.5.1 In all cases of suspected counterfeiting, authentic specimens (standards) of the same type of document should be available for comparison purposes. If a known standard is not available, a reliable reference source with detailed information may be used. All aspects of the documents should be examined and compared until such point that it can be determined with certainty (if possible) that the document in question is either genuine or a counterfeit reproduction. In arriving at this determination, differences generally take on a greater significance than do similarities. The nature of counterfeit examinations will vary, and as a result the procedures appropriate to a given case will vary. What follows is a list of techniques commonly applied to this category of examination. They may not address all aspects of any uncommon or unusual circumstances that might be encountered during examinations, and some may not be possible or necessary in every case. The order may vary depending on the case.
- 13.5.2 Determine if both documents (questioned and known standard) were produced by the same process (e.g., lithography, gravure, inkjet, handwritten). The entirety of the documents should be checked since more than one process may have been used. Evaluate the significance of any similarities or dissimilarities.
- 13.5.3 Compare the physical characteristics (e.g., dimensions, opacity, color) of the documents. Evaluate the significance of any similarities or dissimilarities.
- 13.5.4 Compare any security features within the documents (e.g., micro-line printing, wet or dry seals, fibers, rainbow printing, holograms, latent images, watermarks, planchettes). Evaluate the significance of any similarities or dissimilarities.
- 13.5.5 Compare the quality of printing on the documents. Use a microscope and pay particular attention to areas of fine detail. Evaluate the significance of any similarities or dissimilarities.

13.5.6 Examine both documents with UV long and short wave radiation. Compare the results and evaluate the significance of any similarities or dissimilarities. Security features not previously detected might be visible under UV light.

13.5.7 Examine both documents with the VSC6000. Evaluate the significance of results.

Note: The VSC2000 may be used, but only when the VSC6000 is unavailable. Although there will be situations where either instrument will provide adequate results, the VSC6000 has a broader range of capabilities and shall be the initial instrument of choice.

13.5.8 Consider the significance of observations in ¶¶ 13.5.2 through 13.5.7, both individually and in combination, and form a conclusion.

13.6 Reporting Conclusions

13.6.1 If there are significant differences between the questioned document and the applicable known standard, it may be concluded that the questioned document is not genuine, and is a counterfeit reproduction. The report may also include information regarding how the counterfeit was prepared.

Item X is counterfeit U.S. currency.

or

Item X is counterfeit U.S. currency prepared on an inkjet printing device.

13.6.2 If there are no significant differences between the questioned document and the applicable known standard, and incorporated into the documents are adequate safety/security features, it may be concluded that the questioned document is genuine.

Item X is genuine U.S. currency.

13.6.3 When significant limitations prevent any determination regarding genuineness or non-genuineness, inconclusive results with appropriate explanation should be reported.

Due to the absence of a suitable known standard, it could not be determined whether the Item X document is counterfeit or whether it is genuine.

or

The Item X questioned document and the Item Y known standard display similar class characteristics, however the absence of adequate safety/security features incorporated into the known standard prevents any determination regarding whether Item X is genuine or whether it is a counterfeit reproduction.

14 RUBBER STAMP EXAMINATIONS

14.1 Objective

To determine if two or more stamped impressions were made with the same stamp; or to determine whether a particular stamp was or was not used to make a specific stamped impression.

14.2 References

- Herbertson, Gary; Rubber Stamp Examination; Wide Line Publishing, 1997
- Seaman-Kelly, Jan; Forensic Examination of Rubber Stamps; Charles C. Thomas Publisher, 2002
- Ellen, David; The Scientific Examination of Documents (Second Edition); Taylor & Francis Ltd., 1997

14.3 Equipment

- Stereo microscope
- Magnifier
- Transmitted light box
- Measuring device
- Light source of such a design to allow for oblique lighting

14.4 Interferences

Counterfeit rubber stamps produced through a photopolymer process may duplicate many, if not all, of the characteristics previously thought to be individual and unique to a particular rubber stamp.

14.5 Procedures

- 14.5.1 These procedures may not address all aspects of any uncommon or unusual circumstances encountered during examinations.
- 14.5.2 The procedures outlined below may not be possible or necessary in each and every case. The order may vary depending on the case.
- 14.5.3 Establish whether the examination is a comparison of exclusively questioned impressions, a comparison of a questioned impression(s) with a known impression(s), or a comparison of a questioned impression(s) with a rubber stamp.
- 14.5.4 Examine all impressions (questioned and any known) to establish that each is an original stamped impression and not the product of some other type of process (e.g., photocopy, lithography).
- 14.5.5 Determine if the questioned impression(s) is suitable for comparison. Factors affecting suitability include such things as clarity, detail, degree of inking, and general condition of the document.
- 14.5.6 If known specimen impressions are submitted, determine their suitability for comparison.
- 14.5.7 If a rubber stamp(s) is submitted, note its condition (e.g., clean, dirty, inked, worn, damaged). Prepare appropriate specimens and evaluate their suitability for comparison with the questioned impression(s).
- 14.5.8 Conduct side-by-side comparison of the questioned impressions; or of the questioned impression(s) to the known impression(s) and/or to the rubber stamp(s).
 - 14.5.8.1 Compare the class characteristics, which are those that are largely the result of the manufacturing process, and are likely to be repeated in other rubber stamps (e.g., size, shape, text, type style).

14.5.8.2 Compare any individual characteristics in common, which are those that result from physical damage after manufacture, and which would not be shared with other rubber stamps (e.g., nicks, breaks, blemishes, impression voids, coincidental peripheral printing).

14.5.9 Evaluate the significance of any similarities, dissimilarities, or limitations observed in ¶¶ 14.5.8.1 and 14.5.8.2 and form a conclusion.

14.6 Reporting Conclusions

14.6.1 When there are no significant differences, and there are significant individualizing characteristics in common, an identification may be appropriate. For an identification to be effected, any possibility of a duplicate (or counterfeit) stamp must be eliminated.

The Item X stamped impression was made with the Item Y stamping device.

14.6.2 If there are significant differences, an elimination may be appropriate.

The Item X stamped impression was not made by the Item Y stamping device.

or

The Item X stamped impression and the Item Y stamped impression were not made with the same stamping device.

14.6.3 When there are limiting factors but the examination reveals significant similarities or differences the use of less than definitive (qualified) conclusions may be appropriate. When reporting less than definitive conclusions the provisions set forth in ¶¶ 5.5.1 through 5.5.3 shall be followed.

There are indications (meaning a high degree of likelihood) the Item X stamped impression was (or was not) made with the Item Y stamping device.

14.6.4 When limitations prevent a determination of identification or elimination, inconclusive results with appropriate explanation should be reported.

It could not be determined whether (or not) the Item X stamped impression and the Item Y stamped impression were both made with the same stamping device due to the lack of individualizing characteristics.

Note: There may be similarities or differences with inconclusive results and it may be appropriate to include this information in the report.

It could not be conclusively determined whether (or not) the Item X and Item Y stamped impressions were made with the same stamping device. Although Items X and Y share a number of characteristics in common (e.g., design, size), the possibility of a duplicate stamp(s) displaying these same characteristics cannot be eliminated. Submission of a suspect stamping device might be helpful toward reaching a definitive conclusion.

15 EXAMINATION OF CHECKWRITER MACHINES

15.1 Objective

To determine if two (or more) impressions were prepared with the same checkwriter; or to determine if a specific impression was prepared with a particular checkwriter.

15.2 References

- Harrison, Wilson R.; Suspect Documents (Second Edition); Sweet & Maxwell Ltd., 1966
- Ellen, David; The Scientific Examination of Documents (Second Edition); Taylor & Francis Ltd., 1997
- Hilton, Ordway; Scientific Examination of Questioned Documents (Revised Edition); Elsevier, 1982
- Vastrick, T., "Classification and Identification of Checkwriters", ABFDE monograph, Houston, TX, 1991
- Hargett, J.W. & Dusak, R.A., "A Compilation of Research on the Checkwriter Industry for the Purpose of Classification and Identification", 29th Meeting of the AAFS, San Diego, CA, 1977
- Crane, Adrian, "Identification of Ridge and Groove Cheque Protectors by Platen Ridge Defects", CSFS, Vol. 20, No. 1, March 1987
- Vastrick, T.W. & Smith, E.J., "Checkwriter Identification – Individuality", JFS, Vol. 27, No.1, January, 1982

15.3 Equipment

- Stereo microscope
- Light source of such a design to allow for oblique lighting
- Transmitted light box
- Magnifier

15.4 Procedures

- 15.4.1 These procedures may not address all aspects of any uncommon or unusual circumstances encountered during examinations.
- 15.4.2 The procedures outlined below may not be possible or necessary in each and every case. The order may vary depending on the case.
- 15.4.3 Establish that the submitted impression(s) was prepared on a checkwriter, and is not the result of some other process made to resemble a checkwriter impression (e.g., hand drawn).
- 15.4.4 Establish whether the examination will be a comparison of exclusively questioned impressions, a comparison of a questioned impression(s) with a known impression(s), or a comparison of a questioned impression(s) with a checkwriter machine.
- 15.4.5 Evaluate the suitability of the submitted questioned impression(s) for comparison. Factors affecting suitability include clarity, detail, degree of inking, and general condition of the document.
- 15.4.6 Evaluate the suitability of any known impressions submitted for comparison.
- 15.4.7 If a checkwriter machine is submitted the following may be applicable.
- 15.4.7.1 Note its general condition (e.g., damaged).
- 15.4.7.2 Note the settings, particularly the amount the machine is set to imprint.
- 15.4.7.3 Prepare appropriate specimens, as needed, and evaluate their suitability for comparison.

Note: Begin without changing any machine settings, then change as necessary to obtain appropriate specimens for comparison.

15.4.8 Conduct appropriate side-by-side comparison (questioned impression to questioned impression, questioned impression to known impression, or questioned impression to the checkwriter machine using the specimens prepared in ¶ 15.4.7.3, above).

15.4.8.1 Compare the class characteristics (e.g., impression format, typeface design and size, printing element characters, prefix, payee perforator, platen impressions, inking system).

Note: Prefixes in some machines are removable and interchangeable.

15.4.8.2 Compare any individual characteristics in common (e.g., wear and damage defects, perforation patterns, misalignments, reproducible blemishes, ribbon shift, impression voids, improper inking, extraneous inking, individual prefix features).

15.4.9 Evaluate the significance of any similarities, dissimilarities, or limitations observed in ¶¶ 15.4.8.1 and 15.4.8.2, and form a conclusion.

15.5 Reporting Conclusions

15.5.1 When there are no significant differences, and there are significant individualizing characteristics in common, an identification may be appropriate.

The Item X and Item Y impressions were both made by the same checkwriter.

or

The Item X impression was made by the Item Y checkwriter.

15.5.2 If there are significant inexplicable differences an elimination may be appropriate.

The Item X and Item Y impressions were not made by the same checkwriter.

or

The Item X impression was not made by the Item Y checkwriter.

15.5.3 When there are limiting factors but the examination reveals significant similarities or differences the use of less than definitive (qualified) conclusions may be appropriate. When reporting less than definitive conclusions the provisions set forth in ¶¶ 5.5.1 through 5.5.3 shall be followed.

There are indications (meaning a high degree of likelihood) Item X was (or was not) made by the Item Y checkwriter.

15.5.4 When limitations prevent a determination of identification or elimination, inconclusive results with appropriate explanation should be reported.

It could not be determined whether (or not) the Item X and Item Y were made by the same checkwriter due to the lack of individualizing characteristics.

or

It could not be determined whether (or not) the Item X impression was made by the Item Y checkwriter due to the lack of individualizing characteristics.

Appendix A - Abbreviations

The following is a listing of acceptable abbreviations generated in an effort to assist in the interpretation of Section case file notes. While as comprehensive as possible, the list may not be complete. Other abbreviations, including symbols such as the type used in mathematics or proof reading for which commonly understood definitions already exist, though not listed here, may also be used so long as their applicable meaning is logical and clear. For example, using an 'equal' sign (=) to indicate similarity, likeness or sameness, and a 'does not equal' sign (\neq) to indicate dissimilarity or difference would be acceptable note taking abbreviations. Abbreviations may be written or printed in upper or lower case, but must be legible.

| Abbreviations | Definitions |
|---------------|---|
| acct, acc | account |
| ac | absent characteristic |
| acd | accidental |
| aiw, \$iw | amount in words |
| al | alignment |
| amt | amount |
| approx | approximately |
| ar, arr | arrangement |
| as | approach stroke |
| asc | ascender |
| auth | author, authorship |
| ball pt, bp | ballpoint pen |
| bl | baseline |
| blk | black |
| blu | blue |
| c | container |
| ca | common author or commonwealth attorney (contextual) |
| ccw | counter-clockwise |
| cf | carbon film ribbon |
| cic | characteristics in common |
| ck, chk, chq | check |
| coll | collected |
| commcomp | common authorship for comparable entries |
| comp | comparable |
| concl | conclusion |
| conn | connect |
| cont | continued |
| cpi | characters per inch |
| cq, cyq | copy quality |
| cs | connecting stroke |
| cw | clockwise |
| cy | copy |
| cymk | cyan, yellow, magenta and black |
| cyn | cyan |
| desc | descender |
| dict | dictated |
| dif, diff | difference |
| dir | direction |
| dis, dissim | dissimilar |
| doc | document |
| dysub | dye sublimation |
| elim | eliminate |
| es,esig | endorsement signature |
| evid | evidence |
| ex, exc | except for, exception |

| | |
|---------------|---|
| fax, fx | facsimile |
| fc | features and characteristics |
| flexo | flexography |
| flo, flu | fluorescence |
| fmt | format |
| fp | fingerprints |
| fpc | fingerprint card |
| fpd | fingerprinted |
| g, grn | green |
| hp | hand printing |
| hr, htr | height ratio |
| ht | height |
| hp | hand printing |
| hw, hwg | handwriting |
| id | identify |
| ij | inkjet |
| ik | insufficient known |
| in | inch |
| incl | inconclusive |
| ind | indications |
| indents | indentations |
| init | initial |
| insuf, insuff | insufficient |
| ir | infrared |
| irl | infrared luminescence |
| irr | infrared reflected |
| iw | indented writing |
| j, just | justification |
| k, kn | known |
| kw | known writing |
| ks | known signature |
| l | left |
| lc | lower case |
| lcomp | limited comparability |
| lf | letter form |
| lim | limited |
| lind, li | limited indications |
| litho | lithography |
| lk | lack of known |
| lm | left margin |
| lo, loc | lift-off correction tape |
| lp | latent prints or letterpress (contextual) |
| lq | line quality |
| lzp | laser printer |
| mag | magenta or magnetic (contextual) |
| mal | mal-aligned |
| max | maximum |
| mc, mcy | machine copy |
| mgf | magnification, magnifier |
| mic | microscope |
| min | minimum |
| misc | miscellaneous |
| ms, msig | maker signature |
| nc | not comparable |
| n/c | no conclusion |
| ncr | no carbon required (carbonless system) |
| nh | no have |

| | |
|--------------------|--|
| nn | can be neither identified nor eliminated |
| nr | not represented |
| num | numeral |
| pc | personal computer |
| pfp, pres for prts | preserve/protect for fingerprints |
| phc | photocopier |
| pm | postmark |
| poss | possibly |
| pp | printing process |
| ps | proportional spacing |
| q, que | questioned |
| qe | questioned entry |
| r, rt | right |
| recd | received |
| rgb | red, green and blue |
| rh, rht | relative height |
| rm | right margin |
| rov | range of variation |
| rp | relief printing |
| rs | relative size |
| rst | rubber stamp |
| rsti | rubber stamped impression |
| s, sub | submission |
| sab | same as before (same as above) |
| sb | sealed box |
| scrcni | sealed container received contents not inventoried |
| sgf | significant |
| sig | signature |
| sim | similar |
| simo | simulation |
| si, sind | strong indications |
| sk | skill |
| sme | sealed manila envelope |
| sp | spacing |
| spb | sealed paper bag |
| splb | sealed plastic bag |
| swe | sealed white envelope |
| sye | sealed yellow envelope |
| tc | "T" crossing |
| tf | type font |
| tl | transmitted light |
| tnr | toner |
| tr | tracing |
| ts | terminal stroke |
| tw | typewriter |
| tw | typewritten |
| uc | upper case |
| uch | unexplained characteristic |
| uv | ultraviolet |
| uvf | ultraviolet fluorescence |
| var | variation |
| w | with |
| wo | without |
| wof | white-out fluid |
| wm | watermark |
| y, yel | yellow |

↑ area of similarity

Note: If color-coding is used arrows (or circles) indicating similarity shall be drawn in green ink. Those indicating dissimilarity shall be drawn in red ink.). Arrows may also be used to indicate direction.

↔ area of dissimilarity (for use in non color-coded case notes)

♂ unexplained characteristic

↻ clockwise

↺ counter-clockwise

+, □ positive, plus, good for

-, □ negative, minus, bad for

∅ neutral

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