

EXHIBIT B

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March 25, 2012

**Re: Paul D. Ceglia v. Mark Elliot Zuckerberg and Facebook, Inc.
United States District Court Western District of New York
Civil Action No. 1:10-cv-00569-RJA**

Riley Welch LaPorte & Associates Forensic Laboratories (RWL) Case#11-354031

My name is Gerald M. LaPorte, M.S.F.S., and I am a Forensic Chemist and Document Dating Specialist with Riley Welch LaPorte & Associates Forensic Laboratories. I am currently employed full time as the Forensic Policy Program Manager and Acting Associate Director in the Office of Investigative and Forensic Sciences at the National Institute of Justice, which is within the United States Department of Justice.¹

I have over 18 years of experience in the field of forensic science and nearly 11 years of experience performing physical and chemical examinations on a variety of documents to determine how they were produced, where they may have originated from, and whether they are authentic. I trained with the United States Secret Service in the field of questioned document examination, specializing in the area of ink and paper analysis. For more than 6 years, I was responsible for maintaining the largest international collection of writing ink standards in the world—a collection of nearly 10,000 inks that date back to the 1920s. In 2005, I was promoted and designated a “National Expert” by the United States Secret Service in the forensic examination of documents produced using printers and copiers. Prior to my current position, I served as the Chief Research Forensic Chemist in the Forensic Services Division at the United States Secret Service until March of 2009.

I have testified over 65 times in International, Federal, and State courts. For the past two years I have served as the co-chair of the Standards Practices and Protocols Interagency Working Group (SPPIWG), which is part of the Office of Science and Technology Policy within the Executive Office of the President of the United States. I am a member of several forensic science professional organizations including the American Academy of Forensic Sciences (AAFS), American Society of Questioned Document Examiners (ASQDE), Mid-Atlantic Association of Forensic Scientists (MAAFS), and American Society of Testing and Materials (ASTM) International. I am also a contributing member in the Scientific Working Group for Questioned Documents (SWGDOC) and have served as a Technical Contact when standards are developed for the questioned document community. I participate in the European Document Examiners Working Group (EDEWG) and I am a contributing member of the International Collaboration for Ink Dating (INCID), an international group dedicated to collaborating on methods for ink dating. I have conducted more than 70 lectures, seminars, and training events in 13 different countries for law enforcement

¹ I have permission to operate as an independent consultant in civil matters and have done so since 2008. My findings and conclusions in this matter do not represent the views of the United States government.

**Diplomate of the American Board of Forensic Document Examiners, Inc.*

***American Society of Questioned Document Examiners*

****Fellow of the American Academy of Forensic Sciences*

agencies, professional organizations, and technical experts. I have also organized and personally conducted workshop training in the areas of document authentication and ink analysis. I have published several scientific papers in the area of forensic document examination and authored chapters in the Forensic Chemistry Handbook (*Chemical Analysis Techniques Used in Forensic Document Examinations*) and The Wiley Encyclopedia of Forensic Sciences (*Document Fraud and Forgery*). A true and correct copy of my curriculum vitae is included as Exhibit A.

QUESTIONED DOCUMENTS

Q1and Q2: A two page document titled “WORK FOR HIRE” CONTRACT bearing written notations, which included an interlineation followed by two sets of initials in Section 3 of page 1 (Q1) and two signatures in the names of Paul Ceglia and Mark Zuckerberg in the bottom right side of page 2 (Q2). Each of the signatures was followed by the date April 28, 2003. This document is referenced hereinafter as the Work for Hire document.

Q3 through Q8: A six page document titled “StreetFax Back-End Technical Specification”
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This document is
referenced hereinafter as the Specifications document.

REQUEST

In light of my specialized expertise and experience, I was asked to conduct forensic examinations and testing of the questioned documents pursuant to the Court’s orders in the referenced case.

EXECUTIVE SUMMARY

1. The ink in the interlineation on page 1 of the Work for Hire document was not placed on the document on April 28, 2003. It is highly probable² that the interlineation was produced within 24 months prior to August 28, 2011 (the date the testing was conducted).
2. When the Work for Hire document was presented to me for inspection by Plaintiff’s counsel on July 16, 2011, the paper and inks on the front of pages 1 and 2 were severely degraded due to a photochemical reaction. There is unequivocal evidence that the Work for Hire document was exposed to sunlight or another intense energy source for a prolonged period, probably over a span of weeks.
3. Based on the totality of all of the forensic evidence and a review of multiple declarations and briefs, the Work for Hire document was deliberately exposed to sunlight or another intense energy source for a prolonged period. This intentional exposure occurred after

² The forensic document community relies on ASTM E1658-08: Standard Terminology for Expressing Conclusions of Forensic Document Examiners. “Highly Probable” is used to describe evidence that is very persuasive and the examiner is virtually certain, but there is some factor that precludes the examiner from reaching an absolute certainty degree of confidence.

January of 2011, when Plaintiff's experts Valery Aginsky and John Paul Osborn took high-resolution scans of the document, and prior to the inspection by Defendants' experts beginning on July 14, 2011. The fact that Plaintiff has proffered an explanation of how the document was damaged that is wholly inconsistent with the forensic evidence provides unequivocal support for this conclusion.

4. The deterioration of the "Work for Hire" document did not occur during the forensic examination of the document by Defendants' experts. The damage to the inks and paper was not caused by any of the standard laboratory equipment used during the examination process.
5. Page 1 and page 2 of the Work for Hire document were not produced contemporaneously, at the same time, based on observable and/or chemical differences in the paper, toner, ink, and formatting.
6. Results from the indentation examination of the Work for Hire document are inconclusive due to the deterioration of the document. Even if the incomplete impression on page 2 originated from the interlineation on page 1, the only conclusion that could be drawn is that page 1 was over the top of page 2 at the time that the handwritten interlineation was made on page 1. It does not provide any evidence that pages 1 and 2 were created contemporaneously or that the Work for Hire document is authentic.
7. There is no evidence to refute the possibility that another page, other than page 1 of the Work for Hire document, was originally stapled to page 2 and removed at a later time.

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BACKGROUND INFORMATION

I participated in Defendants' inspection of the questioned documents on Saturday, July 16, 2011 and on Saturday, August 27, 2011. On the morning of July 16, 2011, I received the Work for Hire and Specifications documents from Mr. Argentieri, Plaintiff's counsel. Prior to arriving at the inspection on July 16, 2011, I was provided an electronic version of the Work for Hire document as a Portable Document Format (PDF) file; I understand that this PDF of the Work for Hire document was the version attached to the Amended Complaint in this case. I was unaware that the Specifications document was being presented for examination prior to the inspection.

Upon being presented with the Work for Hire document, and prior to conducting any examinations, I immediately observed that the written areas on page 1 and 2 were vastly different than they appeared in the PDF version. The written notations on pages 1 and 2 were noticeably degraded and faded. I also observed that the paper used for page 1 and 2 was different than typical documents that I usually encounter. Both pages were unusually tensile (stiff) and the fronts were discolored off-white compared to the backs. Prior to performing any examinations on the Work for Hire

document, I proceeded to take high-resolution color digital photographs and scans of the front and back of pages 1 and 2.

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As part of my standard protocol, I took high-resolution color digital photographs and scans of the Specifications document prior to conducting any examinations.

During my examination on July 16, 2011, Defendants' experts were permitted by Plaintiff's counsel to remove only a minimal number of ink plugs. Plaintiff objected to the removal of additional ink plugs and the Court later resolved this issue, ordering the extraction of additional samples from the documents by Defendants' experts. I then returned to Buffalo on August 27, 2011, as authorized by the Court order, to remove additional samples in order to complete my testing.

EXAMINATIONS

I performed a series of physical, optical, and chemical examinations using widely accepted procedures, which are described in the following paragraphs.

1. Physical Examinations

Physical examinations include non-destructive methods for inspecting the documents visually with an appropriate light source, taking measurements, and viewing it with a stereomicroscope. Stereomicroscopes are used to examine the features of a document at varying degrees of magnification. A stereomicroscope is a binocular microscope capable of blending both eyepiece images, allowing the examiner to discern depth of field. This portion of the examination is necessary to determine how a questioned document was produced and whether any written entries are original (i.e., created with a writing instrument) or reproductions (e.g., photocopied or scanned and printed). At this stage of the analysis, it can be ascertained if there are any other extraordinary observations such as alterations, deletions, obliterations, or watermarks in the paper to possibly identify the manufacturing date. In this case, linear and thickness measurements of the paper were recorded. The paper thickness was measured using a micrometer accurate to 1/10,000th of an inch.

Writing inks can be classified into ballpoint, non-ballpoint (e.g., roller ball, felt tip, gel), and fountain pen inks based on their unique microscopic characteristics that result from the combination of their differential chemical composition and interactions with paper. Determining the type and color of a writing ink is commonly reported following a physical examination and is further described in American Society for Testing and Materials (ASTM) International E1422-05: *Standard Guide for Test Methods for Forensic Writing Ink Comparison*.³

Forensic document examiners typically follow ASTM International E2325-05: *Standard Guide for the Non-destructive Examination of Paper* when comparing paper. Even after conducting a full gamut of analyses, the standard suggests that the strongest conclusion that can be reached in a comparative examination of paper is that the "paper samples originated from or share the same

³ E1422-05: Standard Guide for Test Methods for Forensic Writing Ink Comparison, ASTM International. For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website. For referenced ASTM International standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org.

manufacturing source” (see 8.3.2). This does not mean that an examiner should conclude that the paper is the “same” or even originated from the same ream of paper. For example, plain white paper has very few discernible physical features and there are vast supplies of plain white paper available from multiple manufacturers. Extensive optical examinations (e.g., multiple UV wavelengths, filtered lighting, IR) and chemical examinations may be necessary to differentiate plain white paper. If a Forensic Document Examiner can take into account multiple characteristics such as printed margins, ruled lines, hole punches, colored paper, unusual dimensions, and perforations, then it may be applicable to conclude that two pieces of paper “originated from the same source.”

The text, format, and/or images on documents can be printed using various methods. These methods of production are referred to as printing processes and are identifiable using a magnifying device, such as a stereomicroscope, with an appropriate light source. The most common types of home and office machines utilize toner (e.g., photocopiers, laser printers, and some facsimile machines) or inkjet technology (e.g., inkjet printers and some types of multifunction machines capable of scanning, copying, faxing, and printing). Typically, inkjet ink absorbs into the paper and appears planar, or flat, when visualized with a microscope. Toner consists of a particulate material and sits on top of the paper, which appears to have a three dimensional effect when observed with a stereomicroscope. Both of these technologies are capable of printing in black and/or color. In some instances, the printed material on a document may appear black to the naked eye, but is actually composed of a mixture of colors.

2. Optical Examinations

Optical examinations, also referred to as filtered light examinations, are non-destructive and can provide valuable insight regarding the overall composition of ink and paper. Ink and paper are made from components that respond differently to different wavelengths of light, sometimes in regions of the electromagnetic spectrum beyond what the human eye is capable of seeing. The presence of colorants and other materials will directly affect the manner in which inks and paper absorb, reflect, and transmit light. Ultraviolet (UV), infrared reflectance (IRR) and infrared luminescence (IRL) illumination are energy sources that can be used to evaluate the properties of an ink. Forensic document examiners commonly use a Video Spectral Comparator (VSC) for this type of examination. The VSC is an instrument equipped with cameras, lights, and filters that allow a forensic document examiner to conduct detailed examinations, while controlling both the wavelength of light being used and the wavelength or region being viewed with the aid of the camera. The VSC 400TM was used to assess UV, IRR, and IRL characteristics of the writing inks and paper. Attached as Exhibit B is a true and correct copy of a quality control sample, which illustrates two different black ballpoint inks that exhibit different IRL properties and shows how different inks may appear when using a VSC.

3. Impression/Indentation Examination

Documents can be examined for the presence of indented writing, typing, or other identifying impressions. These are impressions sometimes left on paper from writing, typing, or other markings done on another page while it was superimposed over the questioned material.

Impressions can sometimes be seen with the naked eye; however, oftentimes special techniques must be used. One technique involves utilizing grazing light, where the document is viewed while moving a light source, such as a fiber optic light, at various angles and directions. The result can then be captured utilizing digital photography.

The most common technique used to recover impression evidence, however, is by utilizing non-destructive electrostatic processing of a document with an electrostatic detection device (EDD). The most common EDD used is the Electrostatic Detection Apparatus™ (ESDA), which is manufactured by Foster & Freeman.

In electrostatic processing, the document being examined may be humidified in a humidity chamber, then placed on a vacuum bed and covered with a thin clear plastic film. An electrical charge is then applied to the surface of the document by passing a wand containing a high voltage charge over the surface of the film. Next, tiny glass beads coated with black toner are cascaded over the surface of the clear plastic film. Due to the presence of the electrical charge, the toner fills in the impressed areas on the document. The developed toner image is fixed by encapsulating the toner with a lamination film containing an adhesive. The film adheres and fixes the toner, and then is placed onto a white backing. This is called an ESDA “lift.” In an ESDA lift, impressions appear as dark lines and visible writing generally appears as white lines. This entire process is non-destructive and would not cause the deterioration evident on the Work for Hire document when presented for inspection to Defendants’ experts.

4. Chemical Examinations

The features of documents—ink, toner, and paper—are chemical compounds that can be analyzed using specialized laboratory equipment. I use two widely-accepted instrumental analysis techniques to analyze the features of a document. The first is thin-layer chromatography (TLC), and the second is gas chromatography/mass spectrometry (GC/MS). In order to conduct both TLC and GC/MS, I removed paper and ink plugs (circular discs ranging from 0.5 to 1.0 millimeter in diameter) from representative areas of the questioned document with a specialized device. I then placed the samples in a vial, sealed them with a screw top cap, and labeled. Later, in my laboratory, I analyzed the ink, toner, and paper from these samples.

a. Thin-Layer Chromatography (TLC)

TLC is a widely used and scientifically accepted method used to characterize chemical mixtures. TLC allows a forensic scientist to separate out different components of a chemical mixture, such as ink. Once these components are separated, they can be analyzed and compared with the components of other chemical mixtures. Inks, for instance, are typically composed of multiple colorants such as dyes and pigments, solvents, and other trace materials. In order to perform TLC on ink, the ink is extracted from the sample plugs. The ink extract is then applied, as a tiny spot, onto a glass plate coated with a white chalk-like silica layer. The TLC plate is then developed with a mixture of solvents. As the plate develops, the solvent mixture then diffuses up the plate by capillary action and carries the ink spot upwards. Each colorant component of the ink will move at different rates along the TLC plate due to their physical and chemical differences, and stop migrating at different points. Once the TLC plate is fully developed, the multiple dye components will appear as a pattern of spots and bands. The separated components can then be compared with the separated components of other ink samples to determine if they match. In the event that inks contain colorant components that separate and migrate identically, the ink formulations are then said to “match” each other as per ASTM International Standard Guide E 1422-05. Note that “match” does not necessarily imply that the two inks came from the same pen or are even the same formula—there are other chemicals in ink that are not detectable using TLC. Attached as Exhibit C is a true and correct demonstrative slide, showing the basic steps of the TLC process.

This separation and comparison achieved during TLC also provides at least two methods for a forensic examiner to date a writing ink.

One such method is to identify a writing ink that was not commercially available on the purported date of the writing. Since manufacturers are known to change old inks or introduce new ink formulations, it may be determined that an ink formulation was not in production on the purported date of the document. If the pattern of colorants in a sample of ink matches the ink of a particular manufacturer in a reference library of inks, then the ink can be said to come from that manufacturer, and the introductory date may be determined.

Another method is to identify unique chemical dating tags that were knowingly incorporated by two major ink manufacturers in different years. Ink tagging programs have been utilized throughout the 1970s, 1980s, and early 1990s. Another manufacturer began incorporating a chemical dating tag in their ballpoint pens in October of 2002. These tagging components can be detected using TLC.

b. Gas Chromatography/Mass Spectrometry (GC/MS)

A third procedure that can be utilized to help authenticate documents is gas chromatography/mass spectrometry (GC/MS). GC/MS is routinely used for chemical analysis in forensic laboratories throughout the world, and is a method that can be used to identify different and specific substances in a test sample. GC/MS has a variety of forensic applications, including: drug detection, fire investigation, environmental analysis, explosives investigation, and the identification of unknown samples.

With respect to ink analysis, GC/MS is used to compare the non-colorant ingredients in inks that are not detectable when analyzed with TLC, such as resins, volatile, and semi-volatile components.⁴ Although TLC is an excellent method to characterize the colorant components in an ink formulation, the colorants are only a fraction of the total ink formulation. When an ink is placed on a document, some of the components change as the ink ages. GC/MS can be used to measure these changes.

One well-known change is that the amount of the solvent 2-phenoxyethanol (PE) evaporates as ink ages. A solvent is a chemical that dissolves other materials resulting in a solution; as used in ink, solvents aid in the application of the ink to paper. PE continues to evaporate in the 24 months after the ink has been placed on the document.^{5,6,7,8,9,10,11} After 24 months, PE no longer evaporates at a significant or measurable rate. PE is found in over 85% of blue and black ballpoint writing inks.¹²

⁴ Bügler JH, Buchner H, Dallmayer A. Characterization of ballpoint pen inks by thermal desorption and gas chromatography-mass spectrometry. J Forensic Sci, 2005; 50(5).

⁵ Aginsky, VN. Current Methods for dating Documents – Which is Best? Proceedings of 49th Annual Meeting of the American Academy of Forensic Sciences, 1997.

⁶ Aginsky, VN. Measuring Ink Extractability as a Function of Age – Why the Relative Aging Approach is Unreliable and Why it is More Correct to Measure Ink Volatile Components than Dyes. Int. J of Forensic Document Examiners 1998;4(3):214-230.

⁷ Aginsky VN. Current Methods for Dating Ink on Documents. Proceedings of the 60th Annual Conference for the American Society of Questioned Document Examiners, August 14-19, 2002.

⁸ Gaudreau M and Brazeau L. Ink Dating Using a Solvent Loss Ratio Method. Proceedings of the 60th Annual Conference for the American Society of Questioned Document Examiners, August 14-19, 2002.

⁹ Brazeau L, Gaudreau M. Ballpoint Pen Inks: The Quantitative Analysis of Ink Solvents on Paper by Solid-Phase Microextraction. J Forensic Sci, 2007; 52(1): 209-215.

¹⁰ Bügler JH, Buchner H, Dallmayer A. Age determination of ballpoint ink by thermal desorption and gas chromatography-mass spectrometry.

For the purpose of ink dating, GC/MS is used to measure differences in the concentration of PE when samples of the questioned ink are heated and unheated. In this method, samples of the questioned ink are removed from the document, and then one set of the samples is heated and the other set is not. A greater concentration of PE will evaporate from fresh ink compared to older ink when the samples are heated at a temperature of 70 degrees Celsius. Based on extensive research by forensic laboratories throughout the world including the United States,^{5,11} Russia,^{13,14} Germany,^{9,13} Canada,⁷ and Sweden,¹⁰ comparisons with known aged samples, and validation studies,^{6,7,8,9} a significant decrease in the level of PE by more than 25% after the questioned sample is heated indicates that the ink is less than two (2) years old. There are factors that may affect the concentration of PE prior to testing such as storage in extreme cold, which slows the ink drying process, or extreme heat, which hastens the ink drying process, but none of these factors would be expected to cause an increase in the level of PE. Nor would the degradation evident on the Work for Hire document increase the level of PE in the ink I sampled.

RESULTS

Below I present the results of my examinations, addressing the results of: first, my visual examination of the Work for Hire document; second, my physical examination of the Work for Hire and Specifications documents; third, my examination of the paper of both documents; fourth, my examination of the print on both documents; fifth, my examination of the written entries on both documents; sixth, my ink dating analysis of the Work for Hire document; seventh, my indentation analysis of both documents.

1. Visual Examination of the Work for Hire Document: Severe Degradation to the Inks and Paper

As mentioned in the BACKGROUND INFORMATION section, the Work for Hire document that Plaintiff's counsel produced for my examination on July 16, 2011 was atypical and anomalous in that the document's paper and ink were severely degraded. The front of pages 1 and 2 had an off-white appearance and the inks were severely faded. The writing inks appeared light brownish or tan, which is the result of degraded and deteriorated dyes that were once present in the inks.

I reviewed images of the Work for Hire document from the files of Dr. Valery Aginsky and Mr. John Paul Osborn produced by Plaintiff pursuant to Court order. Based on the dates of the image files, it appears that Messrs. Aginsky and Osborn captured images of the Work for Hire document in January of 2011. The ink on these January 2011 images appears dark and black, vastly different than the light brownish appearance I observed on the original documents. Attached as Exhibit D is a true and correct copy of a comparison of the handwritten entries from Mr. Osborn's images of the Work for Hire document with those from the images I captured on July 16, 2011.

J Forensic Sci, 2008; 53(4):982-988.

¹¹ Andrasko, J. Some Examples of Applications of a Microthermal Desorption Device in the Forensic Laboratory. J. Forensic Sci, 2009; 54(5)

¹² LaPorte G, Wilson J, Cantu A. The Identification of 2-Phenoxyethanol in Ballpoint Inks Using Gas Chromatography/Mass Spectrometry. J Forensic Sci, 2004; 49(1).

¹³ Aginsky VN. Some new ideas for dating ballpoint inks—a feasibility study. J Forensic Sci 1993;38(5):1134–50.

¹⁴ Aginsky VN. Dating and characterizing writing, stamp pad and jet printer inks by gas chromatography/mass spectrometry. Int J Forensic Doc Exam 1996;2(2):103–16.

I have also been provided images of the Work for Hire document that were captured by Peter V. Tytell on July 14, 2011. Those images appear the same as what I observed on July 16, 2011. Specifically, those July 14 scans show the same ink degradation – appearing light brownish or tan – that I saw on July 16, 2011, when I inspected the Work for Hire document.

The Work for Hire document exhibits characteristics of severe degradation due to a photochemical reaction. This type of reaction takes place when paper and ink are exposed to intense energy sources, such as sunlight (which contains various sources of energy, such as visible light, UV, and IR), over a prolonged period, usually over a span of weeks. Studies have shown that certain types of black ballpoint writing inks will deteriorate and appear light brownish or tan due to dye degradation.^{15,16} After exposing a document to constant overcast and direct sunlight from inside a standard window, researchers in a recent study concluded, “[a]s expected, a large number of inks showed fading and discoloration when exposed to sunlight over a period of time. . . . In some cases the degradation of the ink was so severe that the original color could not be determined by visual examination.”¹⁵ The researchers captured images of the ink after different periods of exposure. A true and correct copy of these images in comparison with ink from pages 1 and 2 of the Work for Hire document is attached hereto as Exhibit E. Furthermore, in an earlier study, Vos et al.¹⁶ concluded that “sunlight affected both papers and inks dramatically, with one week of exposure often sufficient to change the optical properties of both paper and ink.”

I have also performed research in the area of artificial aging of documents by exposure to environmental factors such as sunlight and extreme heat.^{17,18} Certain types of black inks will fade significantly due to the types of dyes used in the inks, which break down after weeks of prolonged exposure to environmental factors. The degraded inks will appear the same color as the writing inks I observed when I took possession of the Work for Hire document, i.e., light brownish or tan in color.

Other means that can cause severe degradation of paper and ink include the use of extreme heat or the application of chemicals. However, the application of extreme heat or chemicals is unlikely here since there was only damage to the front of the pages of the Work for Hire document. Also, heat would not likely cause the inks to turn brownish in color and the application of chemicals often result in bleeding, leaching, smearing, or running of the inks, which was not observed on the Work for Hire document.

Typically, prolonged exposure to sunlight or another intense energy source will cause significant deterioration to both inks and paper. Plaintiff has made allegations that the Work for Hire document was deteriorated as a result of the forensic examinations by Defendants’ experts on July 14, 2011. I have examined thousands of documents using standard laboratory equipment such as a VSC, UV, and IR source and have never witnessed damage to a document similar to the damage to the ink and paper that I observed in the Work for Hire document. In addition, I am not aware of any reports that

¹⁵ Rottes, T and Bogedain, D. Discoloration of writing inks due to chemical treatment and environmental influences. Presented at the American Society of Questioned Document Examiners Annual General Meeting, August, 2011.

¹⁶ Vos, ME Strach, SJ Westwood, PD. The effect of sunlight and fluorescent tube lights on inks and paper. Journal for the American Society of Questioned Document Examiners, Volume 1, Number 1, 1998.

¹⁷ Schwartz, R. and LaPorte, G. The Effects of Common Environmental Variables on the Infrared Luminescence Properties of Writing Inks. Presented at the Mid-Atlantic Association of Forensic Scientists Annual Meeting, Washington, DC, May 25, 2007.

¹⁸ Holifield, A and LaPorte, G. Artificially Aged Documents. Presented at the Mid-Atlantic Association of Forensic Scientists Annual Meeting, Washington, DC, May 25, 2007.

this type of standard laboratory equipment resulted in severe degradation of paper or ink on a document during an examination.

2. Physical Examination of the Work for Hire and Specifications Documents

There are numerous readily apparent differences between the formatting of the text and the typefaces (fonts) found on pages 1 and 2 of the Work for Hire document. The formatting of the two vertical blocks of paragraphs on the left and right portions of page 1 is different than the block paragraphs found on page 2. The paragraphs on the left side of page 1 span a maximum width of 3.375 inches compared to 3.0625 inches for the paragraphs on the left side on page 2. The paragraphs on the right side of page 1 span a maximum width of 3.4375 inches compared to 3.0625 inches for the paragraphs on the right side on page 2. Also, the positioning of the paragraphs on the right side relative to the left edge of the paper is different. On page 1, the right column is 4.25 inches from the left edge of the page, while on page 2 the right column is 4.375 inches from the left edge of the page. Because the right column on page 1 is closer to the edge of the page, or wider, it can fit more text.

In addition, the spacing between the paragraphs in the vertical blocks on page 1 is significantly different than the spacing between the paragraphs on page 2. The same spacing distance (3/16") is used between each numerical section on page 2 (Sections 8 through 18); however, there is inconsistent spacing between the sections on page 1. For example, the spacing between sections 5 and 6 on page 1 is more than two times the spacing between sections 1 and 2. Finally, the font used to create the text on page 1 is different than the font used for the text on page 2.

REDACTED

3. Examinations of the Paper Used for the Work for Hire and Specifications Documents

Pages 1 and 2 of the Work for Hire document consisted of two pages of plain white paper that measured 8 ½ inches in width and 11 inches in length. Each of the pages contained a pair of holes in the top left corners consistent with staple holes; however, the pages were not stapled together when I took possession of the document and they do not appear to be stapled in the digital images captured by Mssrs. Osborn and Aginsky. Also, a crease in the paper was observed in the top left corner of each page, likely the result of folding the corners of the pages.

Both pages of the Work for Hire document also exhibited significant cockling, or a “wrinkling” effect, which can occur in paper when moisture is removed through extensive drying, such as would occur through prolonged exposure to sunlight or another intense energy source. No watermarks or other identifying features were present to determine the manufacturer of the paper.

Each of pages 1 and 2 of the Work for Hire Document were unusually tensile (stiff), but the texture of page 2 was significantly more tensile than page 1. This is an indication that one piece of paper is different than the other and may have originated from a different source; that is, the papers are from a different manufacturer, a different manufacturing batch, or a different ream. In addition, the corner folded edge along the crease in the top left corner of page 1 was noticeably more flimsy than the corner edge on page 2. The front portions of the pages were significantly discolored and appeared off-white compared to the backs.

I performed eight measurements to determine the average thickness of the paper used for the Work for Hire document. The measurements were taken in a clockwise fashion along all edges of pages 1 and 2 using a micrometer that is accurate to 1/10,000th of an inch. The average of the eight measurements and the standard deviation for page 1 is 0.0042 +/- 0.00005 inches. The average of the eight measurements and the standard deviation for page 2 is 0.0043 +/- 0.00005 inches. A statistical analysis was conducted to compare the average thickness of page 1 and page 2. The difference in thickness between pages 1 and 2 is statistically significant.¹⁹ In other words, the measurements, supported by statistical analysis, demonstrate that the paper used for pages 1 and 2 may have originated from a different source. A true and correct copy of a table of the measurements is attached as Exhibit F.

The opacity of paper refers to the extent to which light transmits through the paper. Different types of paper may have varying ingredients that cause light to transmit differently. The opacity of pages 1 and 2 in the Work for Hire document was compared side-by-side by using the transmitted light function on the VSC 400. Exhibit G is a true and correct copy of a VSC photographic image, clearly showing that page 1 and page 2 have different transmittance characteristics. Thus, the opacity of pages 1 and 2 is different, demonstrating that the two pieces of paper may have originated from different sources.

An examination using an ultraviolet (UV) source showed that pages 1 and 2 of the Work for Hire document exhibited differences when illuminated with short wave (254 nanometer) and medium wave (312 nanometer) UV light. Exhibit H is a true and correct copy of a VSC photographic image, showing comparison of the UV characteristics of pages 1 and 2. These differences demonstrate that the two pieces of paper may have originated from different sources.

Plain white copy paper, like the type identified in this case, often contains optical brightening agents (OBA) to enhance the white appearance of the paper. When visualized with UV, OBAs typically cause the paper to fluoresce—or glow—brightly. I observed that the front of the Work for Hire document barely fluoresced, while the back fluoresced brightly. To assist me in recording my observations, I used a scale of 0 through 4 to assess the “UV brightness” of the paper, where 0 represents no fluorescence and 4 represents extremely bright fluorescence. The front of the pages were characterized with a value of 1 (UV dull), but the backs were assigned a value of 3 (UV bright). OBAs are known to deteriorate and breakdown when subjected to prolonged sunlight or another intense energy source.²⁰

While the majority of the front of pages 1 and 2 of the Work for Hire document exhibited dull fluorescence (value of 1), two rectangular-like areas, approximately 1 cm wide, in the top portions of pages 1 and 2 fluoresced very brightly in comparison. These areas had a UV brightness of 3—the same brightness as the back of each page. Exhibit I is a true and correct copy of a VSC photographic image, showing two images of the UV bright rectangular areas in different positions at the top of page 1 when compared to page 2. The two fluorescent rectangular areas in the top of page 1 begin at approximately 4.9 cm and 18.0 cm from the left edge, respectively. The two fluorescent rectangular areas at the top of page 2 begin at approximately 1.8 cm and 19.1 cm from the left edge, respectively.

¹⁹ Using the Student's T-Test, there is a 95% confidence level that the difference is statistically significant. That is, there is only a 5% chance that the difference in the average of the 8 measurements taken from each page was due to chance.

²⁰ Grabchev I. Photochemistry of some polymerizable fluorescent brighteners. Journal of Photochemistry and Photobiology A: Chemistry 135 (2000) 41–44.

When I examined the top portions of the document with side-lighting, I observed trough-like impressions in the paper at the site of each brightly fluorescing rectangular area. These findings mean that something was “masking” these rectangular areas when the pages were being exposed, resulting in the contrast of UV bright rectangular areas (not exposed) when compared to the remainder of the document that was UV dull (exposed). The trough-like impression indicates that pressure may have been applied by whatever was “masking” the area. Although the exact item cannot be identified, a clothespin or clasp-like item attached to a document during prolonged exposure to sunlight or another intense energy source would create the same characteristics as those noted on the Work for Hire document.

I conducted a chemical analysis of the paper from both pages of the Work for Hire document using gas chromatography/mass spectrometry (GC/MS). I conducted GC/MS analysis on paper from both the UV dull and UV bright areas of pages 1 and 2, in order to obtain results reflecting both conditions of the paper. The UV bright areas were tested separately since they represented the “original,” or natural condition of the paper before it was severely degraded prior to Defendants’ examination. The GC/MS results showed that there are chemical differences in the UV bright rectangular areas of pages 1 and 2 and differences in the UV dull areas when the results from page 1 were compared with the results from page 2. Specifically, the UV bright and UV dull areas on page 2 contained different chemical components than the UV bright and UV dull areas on page 1. Thus, the two pieces of paper have different chemical compositions, based on the chemical comparison of the UV bright and the UV dull areas.

Pages 1 through 6 of the Specifications document consisted of plain white copy-type paper that measured 8 ½ inches in width and 11 inches in length. Pages 1 through 3 contained two sets of staple holes and pages 4 through 6 contained three sets of staple holes in the top left corners. The 6 pages of paper were not degraded in any manner similar to the Work for Hire document. The 6 pieces of paper from the Specifications document could not be differentiated based on the physical, optical, and chemical examinations.

4. Examination of the Toner on the Work for Hire and Specifications Documents

During my physical and optical examinations of the Work for Hire document, I determined that the printed text on the Work for Hire and Specifications documents was produced with an office machine system utilizing black magnetic toner. These types of systems include laser printers, photocopiers, and some facsimile machines. Black toner is a powdery material that is transferred from an office machine and affixed to a document to produce readable text.

I then performed a chemical analysis of toner samples taken from page 1 and page 2 of the Work for Hire document using thin-layer chromatography (TLC). This analysis showed that the toner on page 1 of the Work for Hire document was different from the toner on page 2.

Specifically, the TLC analysis demonstrated (1) that the two toners dissolved differently in the same solvent, and (2) that the two toners “streak” differently on the developed TLC plate and diffuse differently from the point of origin, which means the dissolved components in the toner migrate differently. These differences show that the two toners contain different ingredients and are thus different formulations.

You can see these differences in Exhibit J, which is a true and correct copy of an image of the TLC plate illuminated with an UV source. The TLC plate in the left image was captured prior to development in a solvent system and the spots at the origin represent samples of the toner spotted on the plate immediately after being dissolved with the same solvents. The differences in the two spots occurred because the toners dissolved differently in the same solvents. The left image is the TLC plate after the spots have developed. There is a significant difference in the origins, that is, the spot on the left from page 1 is more diffuse and the spot on the right from page 2 appears more “pinpoint” in nature. Additionally, the differences in the way the toners “streak” on the plate—the toner from page 1 is more diffuse and broad—demonstrate differences in how the dissolved material migrates. All of these differences are evidence that the two toners are different formulations.

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5. Examination of the Written Entries on the Work for Hire and Specifications Documents

A hand-written interlineation is inserted after the first sentence of the second paragraph in Section 3 of page 1 of the Work for Hire document. The interlineation reads as follows: “Providing web designer is finished by May 24, 2003” and is followed by two sets of initials that appear to read “PC” and “MZ”. The written entry was created with a ballpoint writing ink, but due to the severe deterioration of the ink, the original color of the writing ink could not be definitively identified. All of the writing ink appears to be a light brownish or tan color except the staff on the “P” of the “PC” initials, which exhibits the characteristics of a black ballpoint writing ink. The brownish discoloration is known to occur in some types of black ballpoint inks when exposed to prolonged sunlight or another intense energy source.

There are two signatures in the lower right portion of page 2 in the names of “Paul Ceglia” and “Mark Zuckerberg” followed with a date entry reading “4/28/03” and “04.28.03”, respectively. All of the writing ink is faded and appears brownish in appearance. When conducting the microscopic examination, I observed that the ink used for the initials on page 1 had a darker brownish hue than the ink used for the signatures on page 2. A microscopic analysis revealed that the writing ink used for the initials on page 1 have a different discoloration than the writing ink on page 2. Attached as Exhibit K is a true and correct copy of a microscopic image of the “M” from the MZ initials on page 1 compared with the “M” from the signature in the name of “Mark Zuckerberg” on page 2. Specifically, the “M” from page 1 has a darker hue than the “M” from page 2. Similar observations were noted between the “PC” initials on page 1 and the ink used for the Paul Ceglia signature on page 2. That is, the ink for the PC initials has a darker hue than the ink used for the Paul Ceglia signature.

Through an optical examination using infrared luminescence, I differentiated the initials (“PC” and “MZ”) from the interlineation. Thus, at this level of examination, I was able to distinguish the ink on the initials from the ink on the interlineation.²¹

In addition to the physical and optical examinations, I also conducted chemical examinations using thin layer chromatography (TLC) and gas chromatography/mass spectrometry (GC/MS) on all of the writing inks on the Work for Hire document, in order to attempt to further distinguish and

²¹ Due to the degraded condition of the inks, I was unable to confirm the differences using TLC and GC/MS.

identify the inks. I was able to differentiate two other inks on the Work for Hire document from each other chemically. Specifically, I was able to differentiate the ink used to write the interlineation on page 1 from each of the signatures on page 2. I was also able to differentiate the ink used to write the “PC” and “MZ” initials on page 1 from each of the signatures on page 2. Finally, I was able to differentiate the “Paul Ceglia” signature on page 2 from the “Mark Zuckerberg” signature on page 2. However, given the degradation of the inks, I was unable to identify the manufacturer of any of the inks on the Work for Hire document REDACTED

Thus, based on the collective results of all of these tests together (physical, optical, and chemical), I determined that at least four writing inks were used to create the entries, as follows:

- Ink 1:** Interlineation on page 1 (differentiated from Ink 2 optically, from Ink 3 & Ink 4 based on GC/MS)
- Ink 2:** “PC” and “MZ” initials on page 1 (differentiated from 1 optically, from 3 & 4 based on GC/MS)
- Ink 3:** Signature in the name of Paul Ceglia on page 2 (differentiated based on GC/MS)
- Ink 4:** Signature in the name of Mark Zuckerberg on page 2 (differentiated based on GC/MS)

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²² As described in Paragraph 1 in the *Chemical Examinations* section of ASTM Standard Guide E1422, the use of the term “match” does not imply that the inks are identical formulations or from the same pen. In this case, physical, optical, and chemical examinations using TLC were conducted and the inks could not be differentiated.

6. Ink Dating Analysis of the Writing Inks on the Work for Hire Document

I was able to perform GC/MS testing²³ on samples taken from the writing ink on the Work for Hire document in order to compare the various written entries. In the first instance, the GC/MS is run at its broadest setting, “Full Scan” mode, which provides a proportional overview of the compounds in the ink. During this stage of my testing, I observed that the level of 2-phenoxyethanol (PE) in the interlineation on page 1 was unusually high and far exceeded levels of PE in a document purported to be more than 2 years old. Given that the initial testing revealed extremely high levels of PE, I ran a second GC/MS analysis, using the “Selective Ion Monitoring”, or SIM, mode in order to accurately measure the amount of PE. SIM mode can increase sensitivity by a factor of 10-100 times that of the full scan mode, and therefore provides more specific results.²⁴ From the Work for Hire document, I used GC/MS in SIM mode to measure the levels of PE in the ink plugs removed from: i) the interlineation on page 1; ii) the down stroke of the “PC” initials on page 1; iii) the signature in the name of Paul Ceglia on page 2 and; iv) the signature in the name of Mark Zuckerberg on page 2.

After running the GC/MS analysis in SIM mode, I confirmed that the level of PE in the interlineation on page 1 of the Work for Hire document was unusually high, especially for a document of the purported date. The abundance value for PE in the interlineation was over 20,000, which is more than double than the usual threshold for conducting PE testing. This high level meant there was enough PE present to conduct PE testing to date the ink. As discussed above, the amount of PE in a sample of unheated ink can be compared with the amount of PE in a sample of ink that has been heated in order to date ink. If an ink is “dry” (older than 2 years) then the heating should have little effect on the amount of PE lost. If the ink is “fresh” (younger than 2 years) then the heating will cause a large percentage of PE to be removed from the ink. As described previously, a loss of PE of 25% or more indicates that an ink is less than two years old.

I ran the PE test twice on samples from the interlineation on page 1 of the Work for Hire document. The amount of PE decreased 66% and 62% in these duplicate tests, for an average loss of 64% of the PE from the ink in the interlineation. The average loss of PE in this case is more than 2.5 times higher than the 25% cut off level. This result indicates that the ink on the interlineation is less than two years old.

My experience and research lends additional strength to my conclusion. As part of an extensive research project that was conducted at the U.S. Secret Service beginning in 2002, we analyzed 633 ballpoint inks for the presence of PE using GC/MS. High PE levels, as detected in the interlineation (and the PC initials), were not observed in inks that were known to be more than 2 years old.²⁵ Furthermore, an average loss of 64% of the PE between unheated and heated samples far exceeds any value that I have seen in inks known to be older than 2 years.

²³ While I was able to perform GC/MS, TLC analysis of the ink was rendered practically ineffective due to the condition of the ink on the Work for Hire document. This prevented a determination of whether the inks chemically “matched” one another or known inks from a particular manufacturer. Accordingly, the deteriorated condition of the ink prevented any identification or dating techniques based on TLC analysis.

²⁴ GC/MS-Full Scan vs GC/MS-SIM is an online article that describes the difference between the SIM and Full Scan Modes and can be found at: <http://www.caslab.com/News/gcms-full-scan-vs-cgms-sim.html>

²⁵ LaPorte G, Wilson J, Cantu A. The Identification of 2-Phenoxyethanol in Ballpoint Inks Using Gas Chromatography/Mass Spectrometry. J Forensic Sci, 2004; 49(1).

For both the Ceglia and Zuckerberg signatures on page 2 of the Work for Hire document, the abundance value of PE was approximately 5,000. This indicated that the quantity of PE was too low to obtain an accurate measurement for ink dating.

The level of PE in the interlineation on page 1 was determined to be 4.3x higher than the Paul Ceglia signature and 5.1x higher than the Mark Zuckerberg signature, both on page 2. Attached as Exhibit L are true and correct copies of GC/MS graph printouts, which allows comparison of the levels of PE in the interlineation on page 1 and the Paul Ceglia signature on page 2. The graphical output contains a series of peaks, and the peak in the red square represents the PE. The height of the peak is proportional to the amount of PE in the ink that was tested. The PE peak for the Ceglia signature on page 2 is much lower than the peak for the interlineation. PE is known to evaporate at slower rates as the ink ages, so a difference like this would not be observed if the entries were created at the same time.

There was not enough ink available from the initials on page 1 of the Work for Hire to conduct additional PE ink dating since this testing requires a minimum of 4 ink plugs. Nonetheless, the level of PE from the staff of the P in the "PC" initials was significantly high relative to the amount of PE typically found in inks that are known to be more than two years old. The PC initials had an abundance level of over 20,000, a comparable level to the amount of PE found in the interlineation.

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7. Indentation/Impression Examinations

An indented entry was observed above Section 11 on page 2 of the Work for Hire document. The entry was observed with side lighting, but due to the degradation of the paper, I was not able to recover a fully legible entry using the ESDA. Side lighting did allow for a portion of the entry to be visualized, which appears to read "[undecipherable entry] . . . by [undecipherable entry] . . . 2003 PC". Although some of the text coincides with the text in the interlineations, it could not be determined definitively if the entire impression originated from the interlineation on page 1.

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Even if the interlineation on page 1 of the Work for Hire document had been perfectly indented on page 2, that would not demonstrate in any way that the Work for Hire document was prepared in 2003, or even that the two pages were prepared at the same time.

REPLY TO PLAINTIFF'S FINDINGS AND ALLEGATIONS

1. Plaintiff's Allegation That Defendants' July 14, 2011 Forensic Examination Damaged the Work for Hire Document Is Demonstrably False

I understand that Plaintiff has alleged that "yellowing" on the front of each page of the Work for Hire document occurred during the first day of Defendants' experts' inspection, on July 14, 2011, due to "excessive" exposure to UV light.²⁶ This allegation is completely unfounded and demonstrably false.

As an initial matter, the equipment available for Defendants' experts' inspection, UV lamps and a Video Spectral Comparator (VSC)—an apparatus used for magnification and illumination by various light sources—are common laboratory equipment that have been used for decades by thousands of forensic examiners worldwide. I am not aware of any reports or documented findings that suggest that this type of lab equipment would result in deterioration of inks or paper like that observed on the Work for Hire document during the course of an examination. I have examined thousands of documents using standard laboratory equipment such as the VSC or UV lamps. I have never witnessed any damage caused by this equipment, let alone damage similar to the deterioration in the ink and paper that I immediately observed in the Work for Hire document.

As discussed above, the damage and discoloration of the paper of the Work for Hire document were widespread over the entirety of the 8 1/2 x 11 inch document, except the UV bright rectangular areas at the top. The VSC only projects light and other energy sources such as UV and IR over a portion of the document at any single time. You cannot fit the entirety of the document under the light source in the VSC so that it is being equally exposed with the same intensity. Therefore, if any of damage were caused by the VSC then there would be varying degrees of damage and discoloration on different portions of the paper. Moreover, the UV bright rectangular "clip" areas at the top of the page are utterly inconsistent with damage by the VSC or other laboratory lights. These undamaged "clip" areas are a result of placing something that masked those areas during the exposure process prior to Defendants' experts' inspection.

Next, the Specifications document underwent the same examinations using the same equipment as the Work for Hire document.

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The ink and paper of the Work for Hire document was not. High-resolution images of the Work for Hire document taken by Defendants' expert Peter V. Tytell on July 14, 2011 at 9:18 a.m. and 9:22 a.m. clearly show that the document was degraded at that time. Based on my

²⁶ Mr. Blanco also states in his sworn statement that he "found the repeated examinations of the questioned documents by the Facebook experts to be excessive especially with respect to UV exposure." Blanco Decl. ¶ 21(b). This statement is baseless and exaggerated. Based on the position and location in which the equipment was set up at the law offices of Harris Beach, it would have been difficult if not impossible for Mr. Blanco to observe when Defendants' experts were using the UV source of the VSC unit to examine the document, considering the array of other lights and VSC functions that can be, and were, used.

review of Mr. Tytell's images and my own first-hand review of the document two days later, there was no observable change in the extent of the degradation from July 14, 2011 to July 16, 2011.

I have performed research in the area of artificial aging of documents by exposure to chemicals, heat, humidity, UV, and sunlight. I have presented my findings at professional meetings and conducted training workshops and seminars with significant discussions about the topic of artificial aging. Typically, prolonged exposure to sunlight or another intense energy source may cause significant deterioration to both inks and paper like that observed on the Work for Hire document. UV exposure alone, especially only intermittently over a few days, could not cause this kind of deterioration to paper and ink. I have never witnessed significant deterioration to a document caused by exposure to UV during the course of an examination.

I performed an experiment on November 23, 2011 using a VSC 400 and a Crime-lite 82, the same instruments used during the examinations in Buffalo.²⁷ I used standard 8 1/2 x 11 inch plain white paper (20 pound; 92 brightness), and made markings with five different black ballpoint inks on the paper. I then exposed the paper and inks to 365 nanometer UV²⁸ for five timed intervals lasting 15, 30, 45, 60, and 120 minutes. I observed no visible changes to the ink or the paper after 120 minutes of constant exposure to UV.²⁹

The degradation of the paper and inks on the Work for Hire document was not caused by exposure during the examination process. Rather, it is highly probable that this degradation was caused by prolonged, intentional exposure to excessive environmental conditions, probably sunlight, while in Plaintiff's possession from January 2011 to July 14, 2011.

2. Plaintiff's Experts' Sworn Declarations

I have reviewed the Declaration of James A. Blanco, dated October 31, 2011 (the "Blanco Declaration"), and the Declaration of Larry F. Stewart, dated November 1, 2011 (the "Stewart Declaration"). Based upon my initial observation and subsequent examination of the Work for Hire document, it is apparent that both the Blanco Declaration and the Stewart Declaration contain inaccurate and highly misleading statements regarding the Work for Hire document.

As a matter of disclosure, I testified as a fact witness in an ethical hearing that resulted in Mr. Blanco's expulsion from the American Academy of Forensic Sciences (AAFS). According to the *CAC News*, the publication of the California Association of Criminalistics, the Ethics Committee found that Mr. Blanco had "purposely used an inapplicable technique on a particular type of problem in order to mislead a legal proceeding to the benefit of his client." Attached as Exhibit M is a true and correct copy of *The CAC News* report, dated February 18, 2009, in which this incident is described.³⁰ The AAFS Membership overwhelmingly rejected Mr. Blanco's bid for reinstatement

²⁷ Mr. Blanco purports to have conducted his own tests using a VSC-4 Plus. Blanco Decl. ¶ 19. There are numerous flaws with his experiment and his reporting of its results, several of which I will touch on here. Mr. Blanco claims that he exposed a piece of paper to 365 nanometer UV for one hour, which exposure resulted in noticeable "tan lines" on the paper. *Id.* Mr. Blanco does not describe how he conducted the tests, what type of paper was used, nor the extent of the "tan lines" he claims to have observed. He also did not use the equipment actually used during the Defendants' testing. But, most notably, Mr. Blanco did not conduct the test on ink, which was a central aspect of the degradation on the Work for Hire document—or at least he does not report the results of such a test.

²⁸ Note, this is the same UV wavelength that Mr. Blanco purported to use.

²⁹ Note, this period is twice as long as Mr. Blanco's experiment.

³⁰ As reported in the *The CAC News*, regarding Mr. Blanco's expulsion from the AAFS: "The conclusion that Mr. Blanco knowingly issued a false report is simply inescapable. *He tried to use the excuse that it was only a 'preliminary' report, yet he knew full-well that it was to be used in a court matter that very day.* He appended to that report a

after his expulsion by the Board of Directors in September 2008. Other than Mr. Blanco's attendance at a workshop that I taught, I had no prior personal or professional relationship with him before I served as a fact witness on behalf of the United States Secret Service during the AAFS Ethics Committee investigation.

As another matter of disclosure, I testified as a fact witness in a federal perjury trial against Mr. Stewart resulting from his testimony as a government witness at trial. Mr. Stewart was formerly the Laboratory Director in the Forensic Services Division at the United States Secret Service; I was an employee in the same division. Mr. Stewart was ultimately acquitted.

a. The Blanco Declaration

Although the Blanco Declaration contains numerous inaccurate and highly misleading statements, I describe only the most egregious in the following paragraphs.

Mr. Blanco's "Preliminary Findings"

To begin, Mr. Blanco states that his Declaration contains his "preliminary findings." Blanco Decl. ¶ 21. Reporting one's "preliminary findings" during a judicial proceeding is highly unusual and can often mislead the trier of fact.³¹ Forensic examiners should conduct a gamut of examinations to the fullest extent possible and then render an unbiased conclusion based on full consideration of the results.

Mr. Blanco's Paper Examination

Mr. Blanco states that he "examined the opacity and the coddling features (texture) of pages 1 and 2 of the Facebook Contract and these features were the same between both pages." Blanco Decl. ¶ 21(e). This statement is inaccurate and misleading for at least five reasons.

First, the term "coddling" is not a generally accepted term or term of art used to describe paper characteristics; it has no meaning with respect to the condition of paper.

Second, Mr. Blanco does not describe how he examined the opacity of the Work for Hire document.

Third, Mr. Blanco's statement is demonstrably false: the opacity of pages 1 and 2 of the Work for Hire document is, as discussed above, quite different. When the Work for Hire document is illuminated with transmitted light, this difference is clearly visible even to a lay person. Attached as Exhibit G is a true and correct copy of portions of the Work for Hire document illuminated with transmitted light.

Fourth, Mr. Blanco apparently failed to conduct one of the most basic tests when analyzing paper: a comparison of ultraviolet (UV) characteristics. Such a comparison clearly reveals that there is a significant difference in the characteristics of pages 1 and 2 of the Work for Hire document when illuminated with 254 nm and 312 nm UV sources. Attached as Exhibit H is a true and correct copy of portions of the Work for Hire document illuminated with 254 nm and 312 nm UV sources, which show those differences demonstrating the paper is different, even to a lay person.

dramatic photograph that appeared to support his client's position, fully cognizant that the photograph might well be misleading. What he did was tantamount to Photoshopping in a smoking gun."

³¹ See *The CAC News*, *supra* n. ___, attached hereto as Exhibit N.

Fifth, Mr. Blanco's conclusion that pages 1 and 2 possess "the same" features is highly inappropriate. Before reaching any conclusion in a paper examination, comparison of the chemical and optical properties using ultraviolet (UV), infrared luminescence (IRL), and transmittance should be performed. Mr. Blanco does not report that he performed these tests. Furthermore, even after conducting the full range of testing, ASTM Standard E2325: *Standard Guide for the Non-destructive Examination of Paper* indicates that the strongest conclusion that can be reached in a comparative paper examination is that the "paper samples originated from or share the same manufacturing source."³² Thus, Mr. Blanco's conclusion is both unsupported and fundamentally unsound.

Mr. Blanco states that both pages 1 and 2 of the Work for Hire document measured "0.011 thousands." Blanco Decl. ¶ 21(d). This statement is also demonstrably inaccurate. First, Mr. Blanco appears to have used the incorrect numerical term and omits a unit of measurement. Specifically, he quantifies his measurement using "thousands" rather than the correct term, "one thousandths" (1/1000), and does not report the unit of measurement (millimeters or inches), which is improper. Next, the approximate thickness of a typical piece of paper is approximately 0.004 inches. If Mr. Blanco's measurement represented 0.011 inches, his measurement is nearly three times the typical thickness of a piece of paper.

Most importantly, Mr. Blanco's conclusion is false: the thickness of pages 1 and 2 of the Work for Hire document is not the same. As discussed above, I performed a series of eight measurements using a device capable of measuring to the ten thousandths of an inch, which is more accurate than one thousandth of an inch, in a clockwise fashion along all edges of pages 1 and 2. There was an observable, statistically significant difference in the thickness of pages 1 and 2. Mr. Blanco did not indicate that he performed multiple measurements along different areas of the document in order to obtain an average value and standard deviation, which may account for his inaccurate measurements.

Mr. Blanco's Staple Hole Examination

Mr. Blanco states that he "determined that the staple holes on both pages [of the Work for Hire document] align demonstrating that these two pages [] have only been stapled one time wherein they were actually stapled together." Blanco Decl. ¶ 21(b). This statement is inaccurate and blatantly misleading.

To begin, purported alignment of staple holes on two pieces of paper does not "demonstrate" that those pages have been stapled only one time. It is quite possible to detach a multi-page document, attach a new page, and staple through the pre-existing staple hole so that it appears the entire document was only stapled once. I have performed this exercise on numerous occasions and have used re-stapled documents in training workshops that I have conducted. Moreover, purported alignment of staple holes on two pieces of paper does not "demonstrate" that the two pieces of paper "were actually stapled together." I understand from those present on July 15, 2011 that when Mr. Blanco examined the Work for Hire document, it was not stapled and no staple purporting to have fastened that document was provided for inspection. Mr. Blanco appears to simply *assume*

³² Even if Mr. Blanco had drawn the appropriate conclusion, a finding that plain white paper samples originated from or share the same manufacturing source is unremarkable. The type of paper used for the Work for Hire document — 8 ½ x 11 inch plain white copier/printer paper — is widely available by multiple manufacturers. Vast supplies of plain white paper are produced globally; according to the EPA website, about 41 million tons of paper and paperboard are used in the United States annually (<http://www.epa.gov/osw/conserve/materials/paper/faqs.htm#use>).

that the two pages were actually stapled together. But of course, a separate staple may have been placed in each of the pages in or near the same place but at different times.

Mr. Blanco's Indentation Analysis

Mr. Blanco states that an “impression” from the handwritten interlineation on page 1 of the Work for Hire document “is present as a latent handwriting impression on page two. What that means is that page one was over the top of page two at the time that the handwritten interlineation was made on page one.” Blanco Decl. ¶ 21(c). Whether or not this statement is accurate, it does not provide any evidence that pages 1 and 2 were created contemporaneously or that the Work for Hire document is authentic. Rather, it simply means that the handwritten interlineation on page 1 may have been written while page 1 sat on top of page 2 at any point in time.

Mr. Blanco's Conclusions

On the basis of these demonstrably inaccurate and misleading observations, Mr. Blanco concludes that “none of [his] examinations revealed evidence to suggest that page 1 had been substituted out for some other previous page 1.” Mr. Blanco's conclusion seriously deviates from generally accepted scientific methodology. Notwithstanding the host of errors detailed, Mr. Blanco either ignores or has not observed the fact that the fonts, spacing, and formatting on pages 1 and 2 significantly differ, and he has not reported chemical findings regarding the toners, ink, and paper used for the Work for Hire document. These are grave oversights. Mr. Blanco's premature conclusion is remarkably inappropriate and demonstrably false.

b. The Stewart Declaration

The Stewart Declaration also contains numerous inaccurate and highly misleading statements. For instance, Mr. Stewart describes a series of observations regarding the toner found on pages 1 and 2 of the Work for Hire document. *See* Stewart Decl. ¶¶ 53-59. Many of these observations are demonstrably false; collectively, they are blatantly misleading.

Mr. Stewart's Purported Identification of Toners

Mr. Stewart describes his comparison of the toner purportedly found on the Work for Hire contract with his “library of standards.” Stewart Decl. ¶ 56. Mr. Stewart does not provide any information about the contents of this library. He then states that the toner purportedly found on the Work for Hire contract was consistent with toner from only “a Hewlett Packard (HP) 1100/3200 series printer.” Stewart Decl. ¶¶ 56-57. Mr. Stewart does not define what he means by “consistent” or what, if any, tests he conducted to reach his opinions.

First, while some black toners can be differentiated from one another, there is no generally accepted technique by the scientific community by which one can reliably identify the model of a printer based on chemical analysis of black toner. Specifically, if Mr. Stewart will claim he used TLC analysis, that chemical examination for black toner is simply not an accepted technique to identify the make and model of an office machine using black toner. There is no peer-reviewed and published scientific article that suggests TLC analysis of black toners is a reliable technique to identify the make and model of a printer, copier, or facsimile machine. The chemical analysis of printer inks can be probative in cases when the document has been printed with color inks, since color printers can utilize a combination of cyan, magenta, yellow, and black. The multitude of colors then allows for greater discriminatory value because it is less likely that multiple manufacturers will all use the exact same combination of inks. However, in this case, the Work for

Hire REDACTED documents were printed with a single color – black. Black toner is ubiquitous, with very few manufacturers, and has very little discriminative value. In fact, *E2390-06: Standard Guide for the Examination of Documents Produced with Toner Technology* makes no mention of identifying a manufacturer based on the chromatographic examination of black toner.

Additionally, identifying a printer series as associated with a particular black toner is highly inaccurate for many other reasons. For instance, the same formulation of toner can be used in multiple cartridges, which in turn, can be used in multiple models of printers. Furthermore, the same formulation of toner can be manufactured for several years and used in newly designed machines that are introduced long after the toner was first produced.

Yet another limiting factor with respect to identifying a manufacturer based on the analysis of black toner is that different manufacturers are known to use the same formulation of black toner. And the same black toner can be used in multiple cartridges that are, in turn, used in multiple models of printers and copiers. Finally, there are numerous remanufactured cartridges and refill kits with toners that may be indistinguishable from the original equipment manufacturer.

The toner used in the HP 1100/3200 series of laser printers identified by Mr. Stewart comes from the HP C4092A (92A) cartridge. Depending on the level of chemical analysis, the toner contained in the HP 92A cartridge is indistinguishable from black toners in numerous other HP cartridges, which are themselves used in other laser printers and Canon photocopy machines. For example, based on previous knowledge and experience with this particular formulation of toner, I am aware that the toner used in the HP 92A cartridge is indistinguishable from the toner used in the HP C4096A (96A) cartridge. The 96A cartridge is compatible with the HP 2100/2200 series of laser printers, which Mr. Stewart does not identify. These printers are still available for purchase today.

Beyond the possibility that the toner formulation in the HP 92(A) is contained in other cartridges, the HP 92A itself is consistent with at least eighteen different HP machines and ten different Canon machines, not only the HP 1100/3200 series that Mr. Stewart claimed. Mr. Stewart's failure to list all of the machines in which the HP 92A cartridge used is a glaring omission and significant error in his declaration.

Even accepting Mr. Stewart's unfounded conclusion that the toner on the Work for Hire document was necessarily printed on an HP 1100/3200 laser printer, Mr. Stewart mischaracterizes the availability of that printer series. Most importantly, the HP 92A cartridge remains widely available today: it can be purchased from various sources including Staples, OfficeMax, Office Depot, and online retailers. Additionally, many HP 1100/3200 printers are commercially available. The discontinuation date simply means that the manufacturer does not produce them any longer; office machines that utilize toner are known to be very durable and can last well beyond a decade. Moreover, Mr. Stewart fails to consider the availability of the numerous other office machines that use toner that cannot be chemically discriminated from that found in the HP 92A cartridge.

Mr. Stewart's Claim That Toners "Match"

After concluding that the Work for Hire document was printed with "an office machine that utilized toner," Stewart Decl. ¶ 53, Mr. Stewart reports the "preliminary test results" of his "chemical analysis" of the toner found on the Work for Hire document. Stewart Decl. ¶ 54. Mr. Stewart does not describe his "chemical analysis" in any detail. As discussed above, reporting one's "preliminary findings" during a judicial proceeding is disfavored in the forensic examiner

community because it can mislead the trier of fact. Forensic examiners only render their unbiased conclusion on a full consideration of a wide array of examinations.

Mr. Stewart then concludes, based on this unspecified chemical analysis, that “the toner found on page 1 matches that found on page 2.” Stewart Decl. ¶ 55 (emphasis added). This conclusion is seriously flawed for two reasons. First, it is false. As described above, the toners on pages 1 and 2 of the Work for Hire document do not match: they are chemically distinguishable. Because Mr. Stewart provides no detail on his supposed “chemical analysis” other than his “preliminary test results,” his purported conclusion that the toner matches is baseless. Second, even if Stewart was not able to distinguish the toners at his level of analysis, this is a serious misrepresentation. In forensic writing ink comparison, the term “match” means “the inability to distinguish between ink samples at a given level of analysis.”³³ “Match” does not mean that the materials are the same. Because Mr. Stewart does not describe the level of “chemical analysis” that he purportedly conducted, it is particularly inappropriate and misleading for him to use the term “match.”

CONCLUSIONS

The Work for Hire Document

1. The ink in the interlineation on page 1 of the Work for Hire document was not placed on the document on April 28, 2003. It is highly probable³⁴ that the interlineation was produced within 24 months prior to August 28, 2011 (the date the testing was conducted).
 - a. The level of 2-phenoxyethanol in the interlineation and the staff of the “PC” initials was extremely high.
 - b. The amount of PE decreased an average of 64% in duplicate trials when PE analysis was run on the ink samples from the interlineation on page 1. This is more than 2.5 times greater than the baseline value of 25%, which is used to indicate that an ink is younger than 2 years.
2. When the Work for Hire document was presented to me for inspection by Plaintiff’s counsel on July 16, 2011, the paper and inks on the front of pages 1 and 2 were severely degraded due to a photochemical reaction. There is unequivocal evidence that the Work for Hire document was exposed to sunlight or another intense energy source for a prolonged period, probably over a span of weeks.
3. Based on the totality of all of the forensic evidence and a review of multiple declarations and briefs, the Work for Hire document was deliberately exposed to sunlight or another intense energy source for a prolonged period. This intentional exposure occurred after January of 2011, when Plaintiff’s experts Valery Aginsky and John Paul Osborn took high-resolution scans of the document, and prior to the inspection by Defendants’ experts

³³ ASTM International standard guide E1422-05: *Standard Guide for Test Methods for Forensic Writing Ink Comparison*.

³⁴ The forensic document community relies on ASTM E1658-08: *Standard Terminology for Expressing Conclusions of Forensic Document Examiners*. “Highly Probable” is used to describe evidence that is very persuasive and the examiner is virtually certain, but there is some factor that precludes the examiner from reaching an absolute certainty degree of confidence.

beginning on July 14, 2011. The fact that Plaintiff has proffered an explanation of how the document was damaged that is wholly inconsistent with the forensic evidence provides unequivocal support for this conclusion.

4. The deterioration of the "Work for Hire" document did not occur during the forensic examination of the document by Defendants' experts.

a. The damage to the inks and paper was not caused by any of the standard laboratory equipment used during the examination process such as the VSC, UV lamp, or ESDA.

i. The VSC and UV lamps are commonly used during forensic examinations and I am not aware of any reports or documented findings that suggest that this type of lab equipment would result in serious deterioration of inks or paper during the course of an examination.

ii. I have examined thousands of documents using standard laboratory equipment such as the VSC or UV lamps. I have never witnessed any damage caused by this equipment, let alone damage similar to the deterioration in the ink and paper that I immediately observed in the Work for Hire document.

iii. The damage to the paper was widespread over the entirety of the 8 1/2 x 11 inch document, except the UV bright rectangular areas. The VSC only projects light and other energy sources such as UV and IR over a portion of the document at any single time. Therefore, if the damage was caused by the VSC then one would expect to see varying degrees of damage in different parts of the paper.

iv.

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v. The UV bright rectangular areas would not be present on the document if the VSC resulted in the damage. These areas are a result of placing something over the document during the exposure process since that portion of the document was not damaged.

b. I performed an experiment exposing plain white paper and black ballpoint ink to various intervals of UV light. I observed no visible changes to the ink and the paper after 120 minutes of constant exposure to UV.

c. An image of the Work for Hire document taken on July 14, 2011 clearly shows that the document was degraded at that time. There was no change in the extent of the degradation from July 14, 2011 until I took possession of the document on July 16, 2011.

d. The images from Mssrs. Aginsky and Osborn from January of 2011 clearly show that the black ballpoint ink was not degraded and there is no evidence of paper

degradation in any of their images. Therefore, the degradation occurred sometime between January 2011 and July 14, 2011.

5. Page 1 and page 2 of the Work for Hire document were not produced contemporaneously, at the same time, based on the following:
 - a. The formatting for the paragraphs and the typeface of the text (font) on page 1 are different than the formatting and typeface used on page 2.
 - b. The paper used for pages 1 and 2 is different, and it is probable that each page originates from different sources. This conclusion is based on different physical characteristics, optical properties, and chemical compositions.
 - c. The toner used on page 1 of the Work for Hire document is different from the toner used for page 2. Therefore a different source of toner was used to produce the documents. The use of different toners means that either a different printing device or different cartridge of toner was used to produce pages 1 and 2.
 - d. Taken together, the physical and chemical examinations showed that different inks were used to create the written entries on page 1 when compared to the inks on page 2. The inks used for the signatures on page 2 in the names of Paul Ceglia (Ink 3) and Mark Zuckerberg (Ink 4) were different from each other, and both were different from the inks used on page 1 of the Work for Hire document.
6. There were some indentations from handwriting observed on the Work for Hire document—specifically, a portion of the impressed entry on page 2 coincides with the same text on page 1—but the results from the indentation examination are inconclusive due to the deterioration of the document. And even if the impression originated from the interlineation, the only conclusion that could be drawn is that page 1 was over the top of page 2 at the time that the handwritten interlineation was made on page 1. It does not provide any evidence that pages 1 and 2 were created contemporaneously or that the Work for Hire document is authentic.
7. There is no evidence to refute the possibility that another page, other than page 1 of the Work for Hire document, was originally stapled to page 2 and removed at a later time.
 - a. An examination of the staple holes revealed two holes on page 1 and page 2, but no staple was present for the examination so there is no way to determine if the two pages were, in fact, stapled together at one time. Moreover, the purported alignment of staple holes on two pieces of paper does not “demonstrate” that those pages have been stapled only one time, as Mr. Blanco misleadingly claimed. It is quite possible to detach a multiple page document, attach a new page, and staple through the pre-existing staple hole so that it appears the entire document was only stapled once or to place a separate staple in each of the pages in or near the same place but at different times.
8. None of the results could be used to determine whether or not page 2 of the Work for Hire document was produced on April 28, 2003. In part, the testing was hindered by the fact that the inks were severely compromised due to the deterioration of the document and TLC could not be used to determine the availability of the ink formulation.

The Specifications Document

REDACTED

15. There is no evidence to suggest that the Specifications document was created and signed on any date other than April 28, 2003. That is, it could have been created on April 28, 2003, but also could have been created on a date prior or thereafter.

I declare under penalty of perjury that the foregoing is true and correct.



Gerald M. LaPorte, MSFS
Forensic Chemist and Document Dating Specialist

EXHIBIT A

GERALD M. LAPORTE

Curriculum Vitae

Positions: Forensic Chemist & Document Dating Specialist
[Riley Welch LaPorte & Associates Forensic Laboratories](#)
Lansing, Michigan USA

Education: University of Alabama at Birmingham (1994)
Birmingham, Alabama USA
Master of Science in Forensic Science (M.S.F.S.)

University of Windsor (1992)
Windsor, Ontario Canada
Bachelor of Commerce in Business Administration

University of Windsor (1990)
Windsor, Ontario Canada
Bachelor of Science in Biology (B.Sc.)

**Professional
Experience:**

United States Government (03/09 – Present)

Forensic Policy Program Manager and Acting Associate Director

Duties: Provide expert analysis and advice on agency-wide programs or issues of national impact relating to forensic science; provide expert advice to top management officials; identify reasons for the nature and/or extent of program-related problems that arise and investigate area in need of improvement; write comprehensive resolution recommendations; formally present findings before large and diverse audiences, such as Federal, state, and local government representatives, special interest groups, the scientific community, and the media.

United States Secret Service (04/01 – 03/09)

**Chief Research Forensic Chemist (11/07-03/09); Senior Document Analyst (06/05-11/07);
Document Analyst (04/01-06/05)**

Duties: Serve as the technical liaison and research chemist for the United States Secret Service pertaining to issues related to the chemistry of documents and fingerprints; coordinating clandestine tagging programs; direct all research projects within the Forensic Services Division.

Laboratory Duties: perform physical and chemical examinations on a variety of documents to determine how they were produced, where they may have originated from, and if they are authentic. These types of documents include anonymous letters (e.g., threatening, kidnapping, and extortion), suspected counterfeit identifications and financial documents (e.g. travelers checks, credit cards), contracts, and other miscellaneous written materials. Chemical examinations are conducted using thin layer chromatography (TLC), gas chromatography/mass spectrometry (GC/MS), liquid chromatography-mass spectrometry (LC/MS), infrared spectroscopy (IR), scanning electron microscopy/energy dispersive x-ray analysis (SEM/EDXA); perform chemical tests on unknown (e.g. miscellaneous powders) and controlled substances; testify in court as an expert witness.

Administrative Duties: responsible for the overall activities of the instrumental analysis laboratory including supervising interns and contractors, establishing fiscal year budgets for laboratory supplies, maintaining and purchasing all laboratory equipment, and the overseeing of two of the world's largest databases for writing and printer inks; participate in the hiring of new employees and the training of new forensic document examiners within the instrumental laboratory.

Marymount University (08/08 – 01/09)**Adjunct Professor of Forensic Science**

Arlington, VA

Duties: Prepare and conduct lecture material in various areas of the forensic sciences and prepare all laboratory exercises and examinations for graduate students

United States Secret Service, Washington, DC (04/01 – 03/09)

Virginia Division of Forensic Science, Richmond, VA (11/99 – 04/01)**Forensic Scientist**

Duties: analyze evidence for the presence or absence of controlled substances using a variety of chemical and instrumental tests; utilize sophisticated instrumentation such as gas chromatography/mass spectrometry and Fourier transform infrared spectroscopy; testify in court as an expert witness

Anne Arundel County Police Department Crime Lab, Millersville, MD (01/99 -11/99)**Forensic Chemist**

Duties: similar to the duties specified for Virginia Division of Forensic Science

Accu-Chem Laboratories, Richardson, TX (07/96 – 09/98)**Forensic and Clinical Toxicology Specialist**

Duties: supervisor of toxicology department; sales and marketing of drug testing and occupational and environmental toxicology testing; serve as a liaison to physicians and personnel responsible for forensic urine drug testing; testify in court as an expert witness in the area of forensic urine drug testing

Jefferson County Coroner/Medical Examiner Office, Birmingham, AL (09/93 - 07/96)**Autopsy Assistant/Forensic Technician**

Duties: identify, collect, preserve, and document any potential evidentiary material; eviscerate all human organs and document any relevant findings; perform histological examinations

University of Alabama at Birmingham, Birmingham, AL (01/94 – 07/96)**Guest Forensic Science Lecturer**

Duties: lecture on areas related to forensic pathology and death investigation to undergraduate and graduate students

Honors/Professional Affiliations:

American Academy of Forensic Sciences (AAFS)

Mid-Atlantic Association of Forensic Scientists (MAAFS)

American Standards for Testing and Materials (ASTM)

American Society of Questioned Document Examiners (ASQDE)

Guest Reviewer for the Journal of Forensic Sciences

Guest Reviewer for the Journal for the American Society of Questioned Document Examiners

Contributing member and Technical Contact in the Scientific Working Group for Questioned Document Examiners (SWGDOC)

Contributing member in the European Document Examiners Working Group (EDEWG) and the International Collaboration for Ink Dating (INCID)

Recipient of the "2005 Forensic Scientist of the Year" by the Mid-Atlantic Association of Forensic Scientists

Recipient of the United States Attorney's Office Eastern District of Virginia "Law Enforcement Public Service Award"

Professional and Scientific Committees:

1. Co-Chair on the Standards, Practices, and Protocols Inter-Agency Working Group – **Executive Office of the President of the United States**/Office of Science and Technology Policy/National Science and Technology Council/Committee on Science/Subcommittee on Forensic Sciences
2. Participating member in the Expert Working Group for Human Factors in Latent Print Analysis
3. Participating member in the Expert Working Group for AFIS Interoperability
4. Participant member in the Expert Working Group for the Preservation of Biological Evidence

LECTURES AND INSTRUCTIONAL COURSES CONDUCTED

1. **Workshop Instructor.** “Inkjet Technology and Forensic Examinations” at the Annual Meeting for the American Society of Questioned Document Examiners (ASQDE). Dearborn, MI, August 2009.
2. **Workshop Instructor.** “Inkjet Technology and Forensic Examinations” at the Annual Meeting for the Southern Association of Forensic Document Examiners (SAFDE). Peach Tree City, GA, April 8, 2009.
3. **Workshop Instructor.** “Inkjet Technology and Forensic Examinations” at the Skill-Task Training Assessment & Research (ST2AR) Fall Workshop. Las Vegas, NV, October 22-23, 2008.
4. **Workshop Instructor.** “Applications of Light and Color Theory in Forensic Document Examinations” at the American Academy of Forensic Sciences Annual Meeting, Washington, DC, February 18, 2008.
5. **Workshop Instructor.** “Methods Used for Authenticating Questioned Documents” at the Mid-Western Association of Forensic Scientists (MAFS) Annual Meeting, Traverse City, MI, September 25, 2007.
6. **Workshop Instructor.** “Methods Used for Authenticating Questioned Documents” at the American Society of Questioned Document Examiners (ASQDE) Annual Meeting, Boulder, CO August 13-14, 2007.
7. **Instructor for the Midwest Forensic Resource Center (MFRC)** – Recorded Training. Questioned Documents and the Crime Scene, Ames, IA, July 18, 2007.
8. **Instructor at the Federal Bureau of Investigation (FBI) Academy** - Forensic Document Examiner Training Seminar, Quantico, VA. “An Analytical Approach to Forensic Document Examination.” April 17, 2007.
9. **Instructor at the George Washington University**, Washington, DC. “An Analytical Approach to Forensic Document Examination.” February 28, 2007.
10. **Instructor at Marymount University**, Arlington, VA. An Analytical Approach to Forensic Document Examination.” November 14, 2006.
11. **Workshop Instructor.** “Authenticating Documents” American Board of Forensic Document Examiners (ABFDE). Las Vegas, NV, November 6-7, 2006.
12. **Instructor at the George Washington University**, Washington, DC. “An Analytical Approach to Forensic Document Examination.” October 18, 2006.
13. **Workshop Instructor.** “The Forensic Examination of Documents Produced with Office Machine Systems Utilizing Inkjet Technology.” The International Association for Identification (IAI) 91st International Education Conference, Boston, MA, July 3, 2006.
14. **Workshop Instructor.** “Security Features in Documents.” Mid-Atlantic Association of Forensic Scientists Annual Meeting, May 3, 2006.
15. **Instructor at the Federal Bureau of Investigation (FBI) Academy** - Forensic Document Examiner Training Seminar, Quantico, VA. “The Forensic Examination of Inks.” April 5, 2006.
16. **International Instructor in Doha, Qatar.** “The Examination of Counterfeit Documents.” March 27-28, 2006.
17. **Instructor at Marshall University**, Huntington, WV. “Forensic Science at the United States Secret Service.” March 15, 2006.
18. **Instructor at Indiana University-Purdue University at Indianapolis.** “Forensic Science at the United States Secret Service.” December 12, 2005.
19. **Workshop Instructor.** “The Forensic Examination of Printing Processes.” American Board of Forensic Document Examiners (ABFDE). Las Vegas, NV, November 7-8, 2005.
20. **Instructor at the George Washington University**, Washington, DC. “The Forensic Examination of Printers and Copiers.” December 1, 2004.
21. **Instructor at the University of Windsor**, Windsor, Ontario Canada. “Questioned Document Examinations.” November 10, 2004.

22. **Instructor at the University of Windsor**, Windsor, Ontario Canada. "Forensic Science at the United States Secret Service." November 9, 2004.
23. **Instructor at the University of Windsor**, Windsor, Ontario Canada. "Forensic Drug Chemistry and Toxicology." November 8, 2004.
24. **Instructor at George Washington University**. "The Forensic Examinations of Inks and Paper." George Washington University, October 27, 2004.
25. **Workshop Instructor**. "The Forensic Examination of Documents Produced By Office Machine Systems Utilizing Inkjet Technology." Northeastern Association of Forensic Sciences, September 30, 2004.
26. **Instructor at Federal Law Enforcement Training Center**. "The Forensic Examination of Printers and Copiers" and "The Forensic Analysis of Inks and Paper." Brunswick, GA. June 21, 2004.
27. **Guest Speaker at the Federal Bureau of Investigation Laboratory**. "Forensic Chemistry and Questioned Document Examinations." Quantico, VA. May 5, 2004.
28. **Instructor at Forest Park High School**. "Applications of Forensic Chemistry." Woodbridge, VA. May 18, 2004.
29. **Workshop Instructor**. "The Forensic Examination of Documents Produced By Office Machine Systems Utilizing Inkjet Technology." Mid-Atlantic Association of Forensic Sciences, April 20, 2004.
30. **Instructor at George Washington University**. "The Forensic Examination of Printers and Copiers." George Washington University, November 20, 2003.
31. **Instructor at George Washington University**. "Ink and Paper Chemistry." George Washington University, October 30, 2003.
32. **Instructor at Marshall University**. "Ink and Paper Chemistry" and "Counterfeit Identification Examinations." Huntington, WV. September 23, 2003.
33. **International Instructor. International Law Enforcement Academy (ILEA)**. "Ink and Paper Chemistry" and Counterfeit Document Examinations." Pretoria, South Africa. May 19-20, 2003.
34. **Instructor at Federal Law Enforcement Training Center**. "Printing Processes" and "Physical and Chemical Analysis of Inks and Paper." Brunswick, GA. June 22, 2003.
35. **International Instructor. International Law Enforcement Academy (ILEA)**. "Ink and Paper Chemistry" and Counterfeit Document Examinations." Pretoria, South Africa. May 19-20, 2003.
36. **International Instructor. International Criminal Investigative Training Program (ICITAP), U.S.** Department of Justice, "Counterfeit Document Examinations" and "Ink and Paper Chemistry." Sophia, Bulgaria. January 16-17, 2003.

PROFESSIONAL PRESENTATIONS

1. **LaPorte, G.** and Singer, K. Artificial Aging of Documents. Presented at the American Academy of Forensic Sciences Annual Meeting, Atlanta, GA, February 23, 2012.
2. **LaPorte, G.** Trace Evidence Moving Forward. Presented as part of a plenary panel at the 2011 Trace Evidence Symposium: Science, Significance, and Impact. Kansas City, MO, August 9, 2011.
3. **LaPorte, G.** The National Academy of Sciences Report: 2 Years Later. Presented at the Chesapeake Bay Division for the International Association of Identification. Cambridge, MD, March 21, 2011.
4. **LaPorte, G.** Forensic Science: The Importance of Research for Practical Casework. Presented as a Keynote Speech at the 1st Annual World Congress of Forensic Science. Dalian, China, October 21, 2010.
5. **LaPorte, G.** The Importance of Validating and Verifying a Standardized Method: Envelope Examinations and the Anthrax Investigation. Presented at the Mid-Atlantic Association of Forensic Scientists Annual Meeting. Hunt Valley, MD, May 8, 2009.
6. **LaPorte, G.** Questioned Documents and Homicide Investigations. Presented at the Annual Meeting for the Virginia Homicide Investigators Association. Norfolk, VA, October 6, 2008.
7. **LaPorte, G.** Questioned Documents and the Sub-Disciplines. Presented at the Symposium on Special Topics in Questioned Document Analysis. Ankeny, IA, September 30, 2008.
8. **LaPorte, G.** An Overview of the Forensic Examinations on Documents Produced Using Inkjet and Thermal Printing Devices and the Increasing Need for Security. 31st Annual Global Inkjet Printing Conference, Budapest, Hungary, March 12, 2008.
9. **LaPorte, G.**, Beuchel, A, and Stepehns, J. The Examination of Commercial Printing Defects to Assess Common Origin and Batch Variation. Presented at the American Academy of Forensic Sciences Annual Meeting, Washington, DC, February 22, 2008.

10. **LaPorte, G.** Exonerations and Incarcerations: The Key Role of the Forensic Sciences – Questioned Documents. Presented at the American Academy of Forensic Sciences Annual Meeting, Washington, DC, February 19, 2008.
11. **LaPorte, G.**, Holifield, A, and Stephens, J. The Black Money Scam. Presented at the Mid-Atlantic Association of Forensic Scientists Annual Meeting, Washington, DC, May 24, 2007.
12. Schwartz, R. and **LaPorte, G.** The Effects of Common Environmental Variables on the Infrared Luminescence Properties of Writing Inks. Presented at the Mid-Atlantic Association of Forensic Scientists Annual Meeting, Washington, DC, May 25, 2007.
13. Holifield, A and **LaPorte, G.** Artificially Aged Documents. Presented at the Mid-Atlantic Association of Forensic Scientists Annual Meeting, Washington, DC, May 25, 2007.
14. Voiles, R., Stephens, J., and **LaPorte, G.** The Forensic Examination of Documents Using Print Quality Analysis Software. Presented at the Mid-Atlantic Association of Forensic Scientists Annual Meeting, Washington, DC, May 25, 2007.
15. **LaPorte, G.** Forensic Applications of Chromatography at the United States Secret Service. Presented for the Minnesota Chromatography Forum. Minneapolis, MN, March 27, 2007.
16. **LaPorte, G.** The Necessity of Security Printing for the Forensic Scientist. Presented at the 30th Annual Global Inkjet and Thermal Conference. Prague, Czech Republic, March 2, 2007.
17. **LaPorte, G.**, Stoker, D., Thomas, Y, Stephens, J, and Shaffer, D. The Analysis of 2-Phenoxyethanol for the Dating of Documents. Presented at the 59th Annual Meeting of the American Academy of Forensic Sciences, San Antonio, TX, February 22, 2007.
18. Shaffer, D., Stephens, J. **LaPorte, G.** A Comparison of the Physical and Chemical Characterization of Conventional Toners vs. Chemically Prepared Toners. Presented at the 59th Annual Meeting of the American Academy of Forensic Sciences, San Antonio, TX, February 23, 2007.
19. Nelis, E., LaPorte, G., and Thomas, Y. The Use of Electrospray Ionization – Mass Spectrometry for the Identification of Controlled Substances. Presented at the 59th Annual Meeting of the American Academy of Forensic Sciences, San Antonio, TX, February 23, 2007.
20. **LaPorte, G.** The Forensic Examination of Documents Produced on Office Machine Systems Utilizing Inkjet Technology. Presented at the California Association of Criminalistics Fall Workshop Meeting, October 12, 2006.
21. **LaPorte, G.** The Physical and Chemical Examinations of Documents Produced Using Inkjet Technology. Presented at the 4th Meeting of the European Document Experts Working Group, The Hague, Netherlands, September 28, 2006.
22. Schuler, R., Treado, P.J., Gardner, C., **LaPorte, G.**, Stephens, J. Chemical Imaging for Questioned Document Examination. Presented at the 4th Meeting of the European Document Experts Working Group, The Hague, Netherlands, September 29, 2006.
23. **LaPorte, G.** The Forensic Examination of Documents Produced Using Inkjet Technology. Presented at the Imaging Materials Seminar: Inkjet Ink, Rochester, NY, May2, 2006.
24. Layman, M. and **LaPorte, G.** Questioned Documents and the Crime Scene. Presented at the 58th Annual Meeting of the American Academy of Forensic Sciences, Seattle, WA, February 23, 2006.
25. Shaffer, D, Stephens, J., and **LaPorte, G.** The Characterization of Envelopes for Questioned Document Examinations. Presented at the 58th Annual Meeting of the American Academy of Forensic Sciences, Seattle, WA, February 23, 2006.
26. Stephens, J. and **LaPorte, G.** The Use of Hyperspectral Contrast Imaging for the Examination of Writing Inks. Presented at the 58th Annual Meeting of the American Academy of Forensic Sciences, Seattle, WA, February 23, 2006.
27. **LaPorte, G.** and Layman, M. The Use of Supplementary Testing in Forensic Document Examinations. Presented at the Annual Meeting for the American Society of Questioned Document Examiners, Montreal, Quebec, August 15, 2005.
28. **LaPorte, G.**, Arredondo, M, McConnell, Cantu, A. The Static Method of Dating Writing Inks – A Preliminary Assessment of the United States International Ink Library. Presented at the Mid-Atlantic Association of Forensic Scientists Annual Meeting, Pittsburgh, PA, May 19, 2005.
29. **LaPorte, G.** The Forensic Examination of Documents Produced Using Inkjet and Thermal Technology. Presented at the 28th Global Inkjet and Thermal Printing Conference, Barcelona, Spain, March 16, 2005.
30. **LaPorte, G.** The Examination of Inkjet Printed Documents – What’s on the Frontier? Presented at the 57th Annual Meeting of the American Academy of Forensic Sciences, New Orleans, LA, February 24, 2005.

31. Shaffer, D. and **LaPorte, G.** Applications of Scanning Electron Microscopy/Energy Dispersive X-Ray Analysis at the United States Secret Service. *Scanning: The Journal of Scanning Microscopies*, Volume 26(2), March/April, 2004.
32. Arredondo, M and **LaPorte, G.** The Forensic Examination of Paper. Presented at the Mid-Atlantic Association of Forensic Scientists Annual Meeting, Wilmington, DE, April 23, 2004.
33. **LaPorte, G.** The Forensic Examination of Documents and Counterfeit Identifications Related to Terrorism and Financial Crimes. International Conference on Asian Organized Crime and Terrorism. Honolulu, HI, April 10-16, 2004.
34. Cochran, J., Glisson, F., and **LaPorte, G.** Characterization of Inks by Solid Phase Microextraction – Gas Chromatography/Time-of-Flight Mass Spectrometry. Pittconn 2004, Chicago, IL.
35. **LaPorte, G.** Analyzing Bar Soaps by Utilizing a Variety of Optical and Chemical Techniques. Presented at the 56th Annual Meeting of the American Academy of Forensic Sciences, Dallas, TX, February 20, 2004.
36. **LaPorte, G.** The Analysis of Volatile Organic Compounds in Ballpoint Inks Using Gas Chromatography/Mass Spectrometry. Presented at the 56th Annual Meeting of the American Academy of Forensic Sciences, Dallas, TX, February 19, 2004.
37. **LaPorte, G.** Inkjet Technology: The Need for Security and Forensic Traceability. Presented at the 11th Annual European Inkjet Printing Conference, Lisbon, Portugal, November 10, 2003.
38. **LaPorte, G.** Cold Cases in Forensic Science. Presented to the Virginia Homicide Investigators Association (VHIA). October 6, 2003.
39. **LaPorte, G.** The Use of an Electrostatic Detection Device (EDD) to Identify Class Characteristics on Documents Produced by Printers and Copiers. Presented at the American Society of Questioned Document Examiners Annual Meeting. August, 2003.
40. Wilson, J & **LaPorte, G.** The Differentiation of Gel Inks using Various Optical and Chemical Techniques. Presented at the Mid-Atlantic Association of Forensic Scientists Annual Meeting, Annapolis, MD, May 8, 2003.
41. **LaPorte, G.** The Analysis of 2-Phenoxyethanol in Ballpoint Inks Using Gas Chromatography/Mass Spectrometry. Presented at the Mid-Atlantic Association of Forensic Scientists Annual Meeting, Annapolis, MD, May 8, 2003.
42. **LaPorte, G.** The Forensic Examination of Thermal Transfer Printing. Presented for Information Management Institute: The 14th Annual Thermal Printing Conference, Scottsdale, AZ, April 28-30, 2003.
43. **LaPorte, G.** The Use of an Electrostatic Detection Device (EDD) to Identify Class Characteristics on Documents Produced by Printers and Copiers. Presented at the American Academy of Forensic Sciences Annual Meeting, Chicago, IL, February, 2003.
44. **LaPorte, G.** The Forensic Examination of Office Machine Systems Utilizing Inkjet and Toner Technology. Presented for Information Management Institute: The 10th Annual European Ink Jet Printing Conference, Lisbon, Portugal, October 28-30, 2002.
45. Payne, J & **LaPorte, G.** The Forensic Examination of Thermal Transfer Printers. Presented at the Mid-Atlantic Association of Forensic Scientists, Frederick Maryland, April 25, 2002.
46. **LaPorte, G** & Ramotowski, R. The Effects of Latent Print Processing on Questioned Documents Produced by Office Machine Systems Utilizing Inkjet Technology and Toner. Presented at the Mid-Atlantic Association of Forensic Scientists, Frederick Maryland, April 25, 2002.
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2. Houlgrave, S., **LaPorte, G.**, & Stephens, J. The Classification of Inkjet Inks Using AccuTOF™ DART™ (Direct Analysis in Real Time) Mass Spectrometry - A Preliminary Study. Accepted for Publication in the Journal of forensic Science on February 25, 2012.

3. **LaPorte, G.** & Stephens, J. Analysis Techniques Used for the Forensic Examination of Writing and Printing Inks in The Forensic Chemistry Handbook, John Wiley & Sons, 2012.
4. Houlgrave, S., **LaPorte, G.**, & Stephens, J. The Use of Filtered Light for the Evaluation of Writing Inks Analyzed Using Thin Layer Chromatography. Journal of Forensic Sciences, Volume 56 (3), May 2011.
5. **LaPorte, G.**, Stephens, J, and Beuchel, A. The Examination of Commercial Printing Defects to Assess Common Origin, Batch Variation, and Error Rate. Journal of Forensic Sciences, Volume 55 (1), January 2009.
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7. Arredondo, M., **LaPorte, G.**, Wilson, J., McConnell, T., Shaffer, D., & Stam, M. Analytical Methods Used for the Discrimination of Substances Suspected to be Bar Soap: A Preliminary Study. Journal of Forensic Sciences, Volume 51 (6), November 2006.
8. **LaPorte, G.**, Arredondo, M., McConnell, T., Stephens, J., Cantu, A., & Shaffer, D. An Evaluation of Matching Unknown Writing Inks with the United States International Ink Library. Journal of Forensic Sciences, Volume 51 (3), May 2006.
9. **LaPorte, G.** Modern Approaches to the Forensic Analysis of Inkjet Printing – Physical and Chemical Examinations. Journal of the American Society of Questioned Document Examiners, Volume 7, Number 1, June 2004.
10. **LaPorte, G.** The Use of an Electrostatic Detection Device to Identify Individual and Class Characteristics on Documents Produced by Printers and Copiers – A Preliminary Study. Journal of Forensic Sciences, Volume 49 (3), May 2004.
11. **LaPorte, G.**, Wilson, J, & Cantu, A. The Identification of 2-Phenoxyethanol in Ballpoint Inks Using Gas Chromatography/Mass Spectrometry. Journal of Forensic Sciences, Volume 49 (1), January 2004.
12. Wilson, J, **LaPorte, G.** & Cantu, A. Differentiation of Black Gel Inks Using Optical and Chemical Techniques. Journal of Forensic Sciences, Volume 49 (2), March 2004.
13. **LaPorte, G.** Published Book Review, “Advances in the Forensic Analysis and Dating of Writing Ink.” Journal of Forensic Identification Volume 53(6), 2003\735.
14. **LaPorte, G.**, Wilson, J, Mancke, S. Amanda, Payne, J, Ramotowski, R, & Fortunato, S. The Forensic Analysis of Thermal Transfer Printers, Journal of Forensic Sciences, Volume 48 (5), September 2003.
15. **LaPorte, G** & Ramotowski, R. The Effects of Latent Print Processing on Questioned Documents Produced by Office Machine Systems Utilizing Inkjet Technology and Toner, Journal of Forensic Sciences, Volume 48 (3), May, 2003.
16. Lovett Doust, J & **LaPorte, G** (1991). Population Sex Ratios, Population Mixtures and Fecundity in a Clonal Dioecious Macrophyte, Vallisneria Americana. Journal of Ecology. 79: 477-489.

Court Testimony:

I have testified approximately 35-40 times in the Commonwealth of Virginia and the States of Texas and Maryland on issues related to forensic urine drug testing and controlled substance analysis.

I have also testified over 25 times on issues related to forensic document examinations in State, Federal, and International courts as follows:

- | | |
|--|-------------------|
| 1. Tax Court of Canada vs L.D.G. 2000 Incorporated
Montreal, Quebec Canada | April 9, 2002 |
| 2. USA v William Bartmann
United States District Court – Northern District of Oklahoma | October 17, 2003 |
| 3. USA v Clayton Lee Waagner
United States District Court – Eastern District of Pennsylvania | December 2, 2003 |
| 4. Matter of Singh, Atvar (A76-676-494)
U.S. Department of Homeland Security –
Immigration and Customs Enforcement | July 16, 2004 |
| 5. USA vs Paul Ihle, Jr.
United States District Court – Northern Indiana | September 9, 2004 |
| 6. State v Matthew C. Owens, Case # 2NO-SO3-821 CR
Nome, Alaska | January 27, 2005 |

7. USA v Sylvester Richards Gayekpar
United States District Court – District of Minnesota
October 12, 2005
8. State v Matthew Owens, Case # 2NO-S03-821 CR
Kotzebue, Alaska
November 2, 2005
9. USA v Robert Sterling Miller – Western District of Texas
Austin, Texas, Case#A-05-CR-247 SS
April 26, 2006
10. USA v Hector R. Lugo-Rios – United States District Court,
Judicial District of Puerto Rico
San Juan, Puerto Rico, Case#05-354 (JAF)
May 24, 2006
11. USA v Nancy Harlow – Northern District of Texas
Dallas, Texas, Case#3:06-CR-011-D
July 18, 2006
12. USA v Hector R. Lugo-Rios et al – United States District Court,
Judicial District of Puerto Rico
San Juan, Puerto Rico, Case#05-354 (JAF)
August 25, 2006
13. State of New Jersey v Alfred Smith
Superior Court of New Jersey, County of Burlington
Mt. Holly, NJ, Case#05-1988
August 31, 2006
14. USA v Cleveland Kilgore – U.S. District Court For the
District of Maryland
Baltimore, MD, Case#RDB-06-0115
September 21, 2006
15. USA v Isidore Nouthong et al – U.S. District Court For the
Eastern District of Virginia
Alexandria, VA, Case#:1:06cr305
October 26, 2006
16. USA v Isidore Nouthong et al – U.S. District Court For the
Eastern District of Virginia
Alexandria, VA, Case#:1:06cr305
February 7, 2007
17. USA v Clyde Cook – U.S. District Court For the
Eastern District of Tennessee
Memphis, TN
April 10, 2007
18. USA v Jermain Betea
Eastern District of Virginia
Alexandria, VA, Case#1:06cr305
May 3, 2007
19. USA v Crist Dauberman
Eastern District of Virginia
Richmond, VA , Case#3:07CR040
May 8, 2007
20. USA v Jose Padilla et al – U.S. District Court For the
Southern District of Florida
Miami, FL, Case#04-60001-CR-Cooke
July 12, 2007
21. Commonwealth of Kentucky v Quincy Omar Cross
Hickman Circuit
Clinton, KY, Case#08-CR-00001
April 2, 2008
22. People of the State of NY v Stacey Castor
County of Onondaga
Syracuse, NY, DR#05-359834/07-402152
January 21, 2009
23. International Arbitration. Bank Julius Baer Co. Ltd v Waxfield Ltd
Llc Bbcfd Sa G 04-6668-Cv 424 F.3d 278.
New York, NY.
June 11, 2009
24. USA v Mark A. O’Hair, Et AL
Northern District of Florida
Pensacola, FL, Case #3:08cr75/LAC
July 28, 2009
25. International Center for Settlement of Disputes (ICSID);
Libananco Holdings Co. Limited v. Republic of Turkey
ICSID Case No. ARB/06/8
November 3, 2009
26. Lake Forest Master Community Association v. Orlando Lake
Forest Joint Venture, Orlando Lake Forest Inc., NTS Mortgage
Case No. 07-CA-1867-L
Seminole County, FL
March 25, 2010

27. USA v Raogo Ouedraogo,
U.S. Western District of Michigan
Case No. 1:08-CR-68
Grand Rapids, MI
March 10, 2011
28. Yakov Shlimovich v Mikhail Cheban, et al
Case No. BC408095
Superior Court of the State of California
Los Angeles, CA
March 25, 2011
29. USA v Rami Saba
U.S. Western District of Michigan
Case No. 1:08-CR-68
Grand Rapids, MI
May 20, 2011

EXHIBIT B

Quality Control Sample for Infrared Luminescence

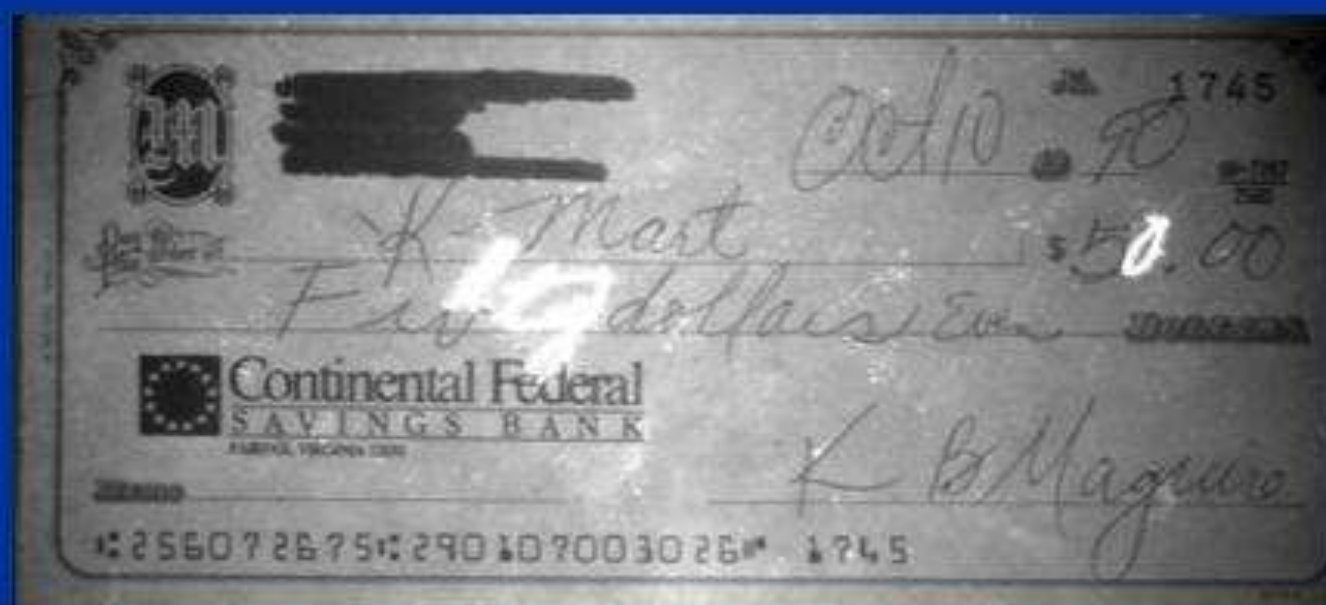


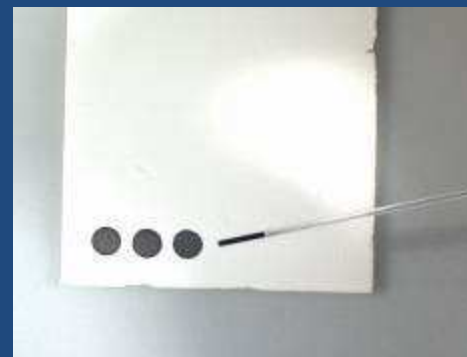
EXHIBIT C

Separation of Colorants Using TLC

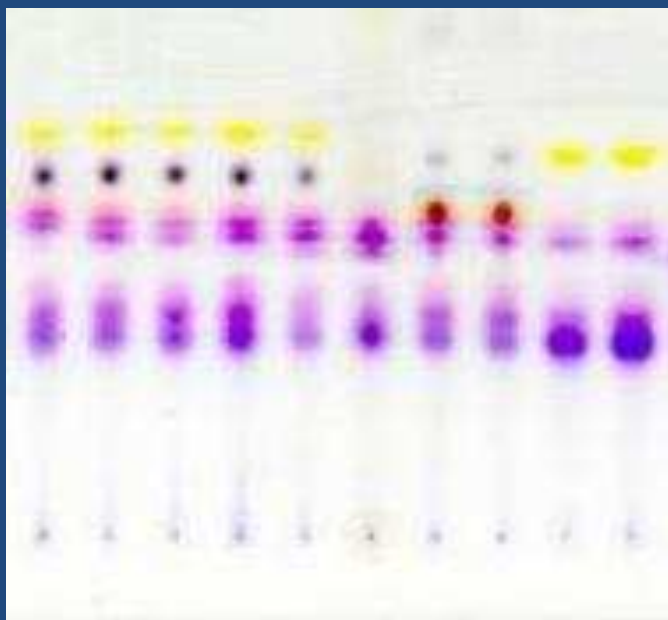
Documents with ink



Ink extracted
from documents
with appropriate
solvent



Spots applied to
TLC plate



Colorants separated with
appropriate solvent system

EXHIBIT D

Comparison of the Written Notations from Images of the “Work for Hire” Contract that were Captured on January 5, 2011 and July 16, 2011

An image of the interlineation on page 1 that was captured by John Paul Osborn on January 5, 2011

The agreed upon project due date ifor the StreetFax software is *for* May 31, 2003. *Providing web designer is finished by May 28, 2003* *MZ* The agreed upon completion for the expanded project with working title “The Face Book” shall be January 1, 2004 and an additional 1% interest in *Pu*

An image of the interlineation on page 1 that was captured by Gerald LaPorte on July 16, 2011

The agreed upon project due date ifor the StreetFax software is *for* May 31, 2003. *Providing web designer is finished by May 28, 2003* *MZ* The agreed upon completion for the expanded project with working title “The Face Book” shall be January 1, 2004 and an additional 1% interest in *Pu*

An image of the signatures on page 2 that were captured by John Paul Osborn on January 5, 2011

The signatures below will execute this contract.
Buyer – Paul Ceglia, StreetFax
[Signature] *4/28/03*
Seller – Mark Zuckerberg
MR Zuby 04.28.03

An image of the signatures on page 2 that were captured by Gerald LaPorte on July 16, 2011

The signatures below will execute this contract.
Buyer – Paul Ceglia, StreetFax
[Signature] *4/28/03*
Seller – Mark Zuckerberg
MR Zuby 04.28.03

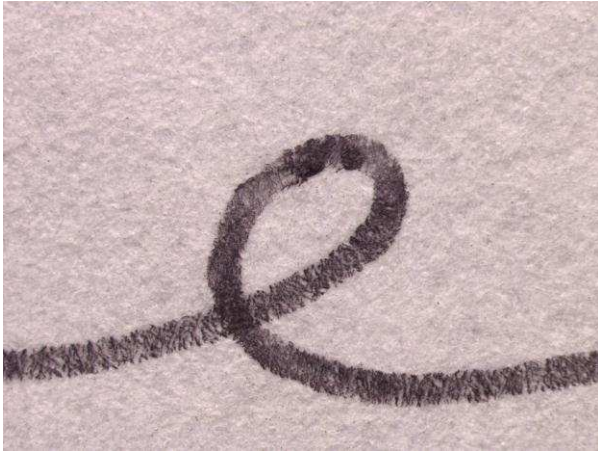
EXHIBIT E

Images of Black Ballpoint Ink After Exposure to Sunlight

Fresh Ink

4 Weeks of Exposure to Sunlight

16 Weeks of Exposure to Sunlight



Images of Ink from Pages 1 and 2 of the Work for Hire Document

"Zuckerberg" Signature on Page 2

MZ Initials on Page 1



EXHIBIT F

Paper Thickness Measurements

Clockwise Starting from Lower Left

	Page 1	Page 2
	0.0042	0.0043
	0.0042	0.0043
	0.0042	0.0043
	0.0043	0.0043
	0.0042	0.0044
	0.0042	0.0044
	0.0041	0.0044
	0.0042	0.0043
Mean	0.004200	0.004338
Standard Deviation	0.000053	0.000052

EXHIBIT G

are assignable or transferable (as security for a loan) without the Purchaser's prior written consent, purchases of raw materials or standard commodities. Seller shall not subcontract any major portion of this order without the Purchaser's prior written consent. Purchaser shall not be required to recognize or subcontract made without its prior written consent.

The buyer accepts that there will be two other on this project their work will be accepted prior "work made for hire agreement" are in place.

E" CONTRACT

9. Proprietary Rights

It is acknowledged that this is a work made for all Intellectual property rights or patent rights. All code in portion or in its complete form remain the property of StreetFax Inc. If the items to be supplied hereunder in accordance with specifications or data furnished by Purchaser or its Customer, such items shall not be returned without the approval of the Purchaser and, as applicable, all drawings, photographs, data, software, and other information supplied in connection therewith shall remain the property of the Purchaser or its Customer and shall be promptly returned upon request at the completion, termination or expiration of this order. In the event that StreetFax default occurs, all rights would be granted to seller.

Purchaser's Property/Seller's Responsibility

For the StreetFax database Buyer agree to pay for and maintain the server and keep for the servers needed for its operation.

"The Face Book" Seller agrees to maintain and act as the sites webmaster and to pay for all domain and hosting expenses from the funds received from the contract, and Seller agrees that he will maintain control of these sites at all times.

Plans, drawings, tooling, patterns, materials, specifications, and any other items or information supplied to Seller under this order are the property of the Purchaser and must be returned upon completion of the order. Such items or information are to be used solely in the performance of the work by the seller and shall not be used or disclosed for any other purpose whatsoever without Purchaser's prior express written consent.

10. Termination

A. DEFAULT - The Purchaser may terminate

thereof by written notice if the Seller: Settlement of Controversies

- a) fails to make deliveries or to complete the obligations hereunder within the time specified in the order or in accordance with the agreed schedules in the event that this purchase order is for materials or equipment which is excluded from this Prime Contract, and in the case of disputes between the Purchaser and the Customer or between the Purchaser and the Seller.

EXHIBIT H

order and due calendar days
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the account of the Sell
In all events, the Purch
any third party claim
the price of any items
notice of termination

(c)

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Seller.

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EXHIBIT I

8. Assignment of Subcontracting

a) Whenever the S

“WORK FOR HIRE” CONTI

SECTION 1- GENERAL PROVISIONS

5. Purchaser's Property
For the StreetFax datab

a) Whenever the Seller has knowledge that any actual or potential labor

WORK FOR HIRE" CONTRACT

5. Purchaser's Property/Seller's Responsibility

For the StreetFax database Buyer agree to pay for and maintain the cost of upkeep for the servers needed for it's operation.

EXHIBIT J

TLC Analysis: UV Visualization of Toner from Work for Hire and Specifications Documents

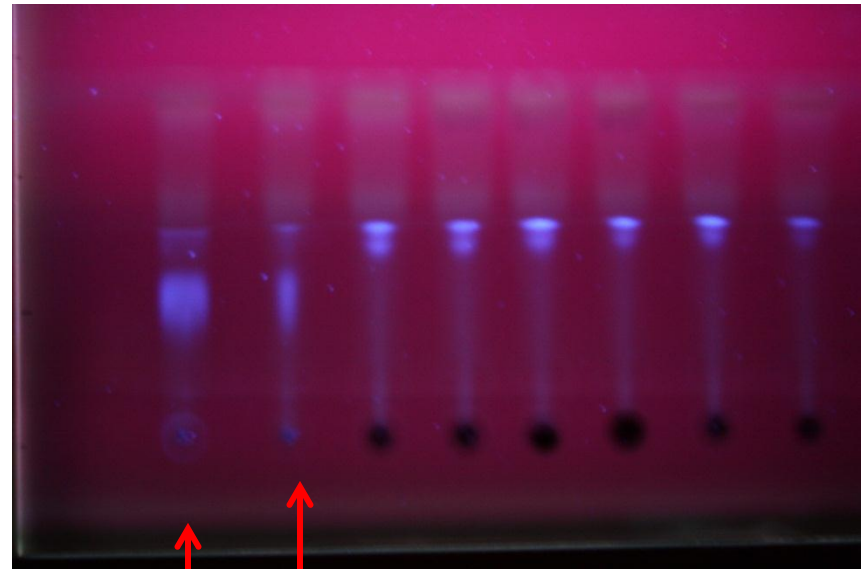
Prior to Development

After Development



Toner from Page 2

Toner from Page 1



Toner from Page 2

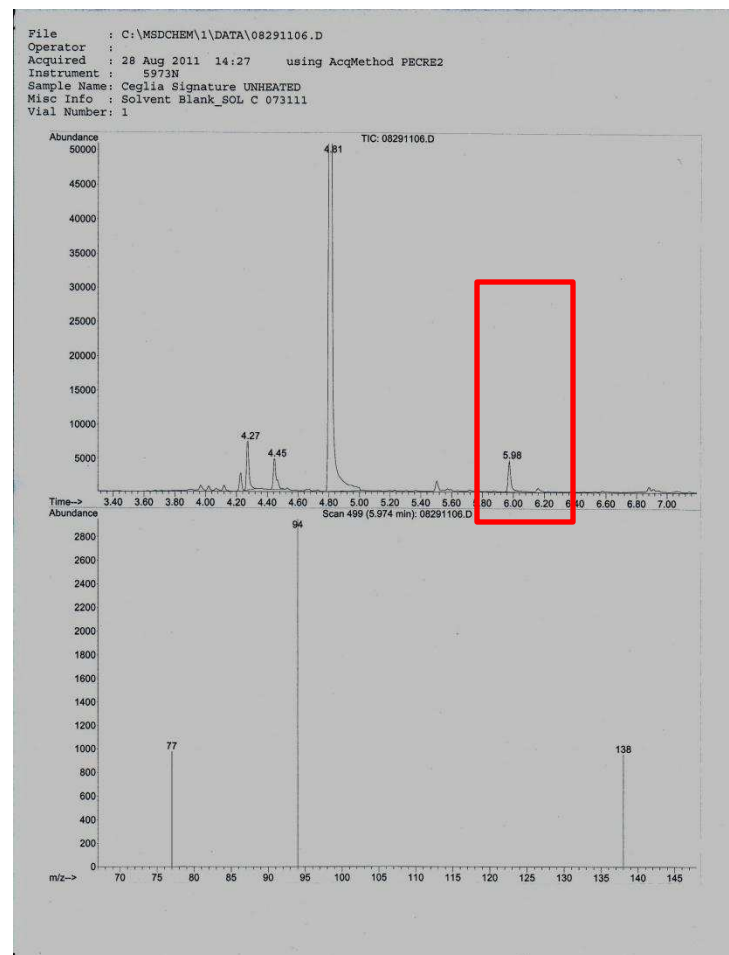
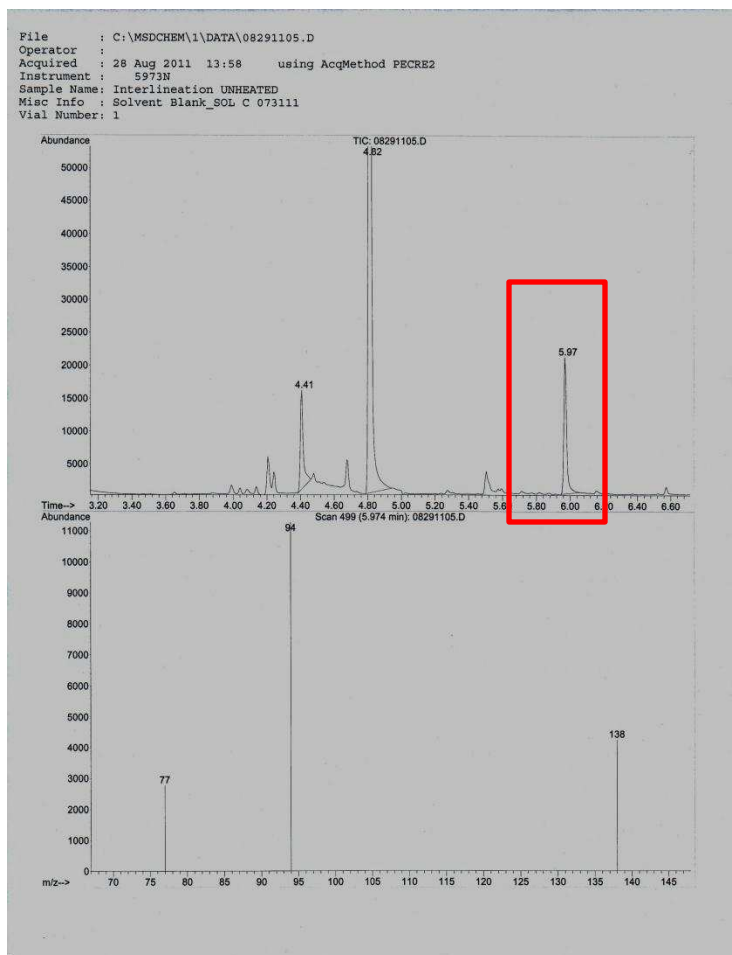
Toner from Page 1

EXHIBIT K



EXHIBIT L

Comparison of the Concentration of 2-PE: Interlineation vs Ceglia Signature



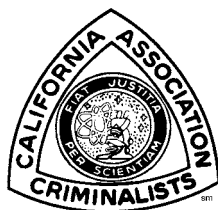
The concentration of 2-PE in the Interlineation is more than 4x
the concentration of PE in the Ceglia Signature

EXHIBIT M

The CACNews

News of the California Association of Criminalists • Third Quarter 2009





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The *CACNews*, ISSN 1525-3090, is published quarterly (January, April, July, and October) by the California Association of Criminalists (CAC).

The CAC is a private foundation dedicated to the furtherance of forensic science in both the public and private sectors.

Please direct editorial correspondence and requests for reprints to the editorial secretary.

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Notice to Contributors: We publish material of interest to our readers and are pleased to receive manuscripts from potential authors. Meetings and course announcements, employment opportunities, etc. are also solicited. Advertisements are also accepted, although a fee is charged for their inclusion in *The CACNews*. Please contact the advertising editor for further information.

Submissions should be made in the form of Windows compatible files on CD or by e-mail. MS Word files should be saved as version 2000 compatible. Alternatively, text files may be saved as plain ASCII files without formatting codes, e.g. bold, italic, etc. Graphics, sketches, photographs, etc. may also be placed into articles. Please contact the editorial secretary for details.

The deadlines for submissions are: December 1, March 1, June 1 and August 15.



On the cover...

San Bernardino Sheriff crime scene specialists Jessica Cundieff (l) and Heather Harlacker (r). Together with Justin Lyndes they demonstrated chemical methods of searching for blood patterns at the recent CAC Spring Seminar.

INSIDE

"The President's Desk" President Mary Hong.....	2
CACBits / Announcements / Classes.....	4
Editorial Secretary, "A Pocketful of Change" Greg Matheson	5
"Feedback" Letters to the Editor	6
"Fishing for Clues" The recent Spring Seminar	11
"Longhetti Distinguished Member" Daniel Gregonis .	16
"Seminar Abstracts" Spring 2009	18
Proceedings of Lunch, "Challenging the Canon" Norah Rudin and Keith Inman	23
Regional Director Reports.....	25
"Evaluating Antimony and Barium Ratios Found in Elemental Data from Gunshot Residue " Mendoza, et al.	26
New Members Speak Out	33
"The Science Scene Workshop" Poster	36
"Selection of Immersion Media for Trace Evidence Examination " J. Thornton and M. Gallagher	38
"A Variation of the Oblique Illumination Method for Refractive Index Determination" J. Thornton and M. Gallagher	41
"Step-by-Step: Rectifying Angled Images" Carolyn Gannett	42
"Identification and Characterization of Nanometer-Thick Fluorocarbon Surface Layers on Individual Textile Fibers via Synchrotron ATR FTIR Spectromicroscopy" Bob Blackledge	44
"The Advanced Light Source at the Lawrence Berkeley National Laboratory" Bob Blackledge	48
CACNews Production Steps	50

The Editor's Desk

A Pocketful of Change

Change can be difficult, but it is important and integral for life.

The Miriam-Webster on-line dictionary definitions for “change” include:

1. *To give a different position, course, or direction.*
2. *To make a shift from one to another.*
3. *To become different.*
4. *Coins especially of low denominations <a pocketful of change>.*

Change, or the promise of change, is so important it was the focal point and rallying word of our last presidential election. Change can be thrust upon us or we can seek it out. Change can cause improvement or it can confound and confuse us. As we go through our lives we constantly deal with change—big, small, important, and insignificant. The only definition of change, on the above list, that doesn't come with a certain level of stress or concern is “a pocketful of change.” But, the reality for me of a “pocket full of change” has also changed. With the greater use of credit and debit cards, I have much less change in my pocket. I don't know if this is a good or bad change, but I do know my change jar (actually a side-arm vacuum bottle) takes considerably longer to fill. However, my change jar was used to collect coins to play slot machines on the rare occasion I went to Las Vegas, but, as I learned on my most recent trip to Sin City—most slot machines no longer take coins. Therefore, one change is offset by another change, resulting in one less reason to keep change.

The focus of this editorial will be one of the minor changes in your life, hopefully not completely insignificant, but definitely minor. Every spring, the CAC goes through change. Elections occur for half of the positions on the Board of Directors. This last spring I was elected to the position of editorial secretary, beating my imaginary opponent by a landslide. With this election, I replaced Ron Nichols who served the CAC as editorial secretary for the last six years.

The primary responsibilities of the CAC editorial secretary are the production of the *CACNews* and the maintenance of the CAC website. If I really had to produce the newsletter or maintain the website myself, I never would have chosen to pursue this position. Luckily, the CAC has an exceptional Publications Committee composed of talented volunteers dedicated to providing you with exceptionally produced and maintained CAC information sources. Because of the Publications Committee, the change of editorial secretary will have a minimal impact on the overall look and feel of our association's communication tools. However, I do plan to have an impact by bringing my experiences to the job and continue to build and improve on the good work of those before me.

As individuals, our own interests, experiences, and beliefs influence every endeavor we choose to pursue. For six years Ron did an excellent job as editorial secretary, providing the CAC with what was needed while subtly influencing things with his view on life and our profession, which were based on personal and professional experiences. I intend to bring to my new position ideas born from my own personal and professional experiences. This change, like many others, is good because it allows the presentation of new ideas and experiences. I hope that when I am replaced, the next editorial secretary brings change with a whole new set of ideas and experiences to share.

I love being a part of the criminalistics profession. The work we do is important and helps society in ways most people never have the chance to experience. I have had the opportunity to work in several specialties and at many different levels. I have participated in several professional organizations and feel that the California Association of Criminalists is the best. The CAC has historically taken the lead on issues at the core of a profession such as ethics and certification. All of this is why I have chosen to once again serve such a worthy organization. In addition, I feel that at this point in my career I can bring a unique set of skills and experiences to the CAC.

In a previous issue [*CACNews*, 4thQ 2008] I wrote a guest editorial about an area I feel the CAC has been lacking. Preparing casework criminalists to be the profession's future leaders and to help bridge the gap between the needs of bench analysts, supervisors and managers. Future editorials will focus on these complex but important issues.

For the next two years, I will be sitting on the board of directors of two forensic science professional organizations,

*Starting with
this issue of
the CACNews
you will see
comments from
some of our
new members.*



Greg Matheson
CAC Editorial Secretary

the CAC and ASCLD. I will use this opportunity to share with both boards, and with you, the wants and needs of analysts and managers. For the next issue of the *CACNews* I have asked Dean Gialamas, the Laboratory Director of the Orange County Crime Laboratory and ASCLD President to write an article for the *CACNews*. It will be from his perspective and focus on the relationship between ASCLD and the CAC, what CAC members mean to ASCLD, and what ASCLD should mean to the CAC. It is advantageous to all of us to improve our lines of communication.

Starting with this issue of the *CACNews* (see page 33) you will see comments from some of our new members. I challenged our newest members with several questions. Their responses should be read and digested by decision makers

within the CAC. I found their input both interesting and informative. Thanks to those who responded with their thoughts and suggestions.

Finally, I want to challenge all of you, who had the persistence to get this far, to drop me an e-mail with your thoughts and ideas about creating change in the *CACNews* and the CAC website. Or, if you don't have any suggestions at this time, just send me an e-mail so I know someone read this to the end.

Thank you for your time and involvement in a wonderful organization. I am looking forward to this change.



SJSU Expresses Gratitude

On behalf of San Jose State University, I am please to acknowledge California Association of Criminalists' generous donation of \$5,000 to support the CAC Forensic Science Scholarship Fund.

San Jose State University is committed to providing an outstanding education and to improving lives in the many communities it touches. Your financial support helps us sustain this commitment to excellence.

Thank you for your generosity. Please know it is deeply appreciated and will be carefully stewarded.

Fred Najjar
Vice Pres., University Advancement

A Thank You from CSULA

The Criminalistics faculty of the School of Criminal Justice and Criminalistics at the California State University, Los Angeles wish to thank the California Association of Criminalists for its support of our academic and research programs. Specifically, we would like express our appreciation for the \$3,500 award given in support of our research on the development of biochemical assays to correlate bloodstains with bodily injuries. We are also indebted to the CAC for its continued support of our graduate students. The \$5,000 gift for scholarships will further the success of our students in their scholastic and professional pursuits.

Professors Donald Johnson & Katherine Roberts
California State University, Los Angeles

James Blanco: A Cautionary Tale

An ethics case against James Blanco was resolved at the business meeting of the American Academy of Forensic Sciences on Feb. 18, 2009. The AAFS membership overwhelmingly rejected his bid for reinstatement after his expulsion by the Board of Directors in September 2008. Among his few

supporters, I noted some Criminalists and I understand there was much discussion of the matter in their section business meeting. I am writing this in hopes of clarifying the issues.

The AAFS Ethics committee, after extensive investigation and testimony, found that Mr. Blanco had purposely used an inapplicable technique on a particular type of problem in order to mislead a legal proceeding to the benefit of his client.

I was not a party to the complaint or the proceeding so I was not privy to any confidential information. I am familiar with the type of problem, the technique he applied, and with Mr. Blanco himself. I have known him for most of his career, though we have never worked together. The content of this article is based solely on that knowledge and a review of the information posted on the AAFS Members' page of the website so that voting members could familiarize themselves with the issues before considering Mr. Blanco's appeal.

First let us consider the problem—a line intersection. Mr. Blanco was asked by his client to determine which came first, text in inkjet printing or a signature in ballpoint ink. His client alleged that the inkjet text entry had been placed on the document after he had signed it.

In November of 2005, James Blanco, a Forensic Document Examiner in private practice with offices in Los Angeles and San Francisco, issued a report on a line intersection matter. His report indicated that he based his findings on IRLum and visual examination of the back of the paper. He appended a dramatic IRLum photograph which appeared to show a dark line on top of a glowing line, knowing that his report would be used immediately in a settlement hearing. Later in the course of an ethics investigation, he claimed that he had actually based his findings on other techniques, but had not had time to list them in his report. He was unable to recall what they were, and his meager bench notes did not refer to any other types of examinations. There is a strong implication that Mr. Blanco based findings he knew were about to be used in a legal proceeding on one technique of marginal usefulness and another that had 50% chance of actually being misleading.

Opinions expressed in Feedback are solely those of the author. Letters may be edited for clarity and brevity.

The next question is: Did James Blanco knowingly prepare a misleading report to the benefit of his client?

In order to believe that Mr. Blanco made an innocent mistake, one must accept the following propositions:

Mr. Blanco managed to remain ignorant of a well-established and long-known principle of document examination while working under the supervision of another FDE in an Accredited laboratory. Mr. Blanco maintained that ignorance while studying for the rigorous testing he underwent to obtain ABFDE Certification and the continuing education necessary to retain it. Mr. Blanco did not read the 16 articles he cited in his defense against the ethics charges. None of them recommended IRLum for line intersections problems and some warned against doing so. Mr. Blanco slept through, or immediately forgot the content of, a workshop he paid hundreds of dollars to attend. The ABFDE workshop on line intersection problems was held Nov.8-10, 2005; the date of the report in question was Nov. 11, 2005. Despite his firm belief in the validity of IRLum for line intersection problems, Mr. Blanco felt it necessary to defend himself by claiming to have actually relied upon other techniques, the particulars of which he was unable to recall or document.

The conclusion that Mr. Blanco knowingly issued a false report is simply inescapable. He tried to use the excuse that it was only a "preliminary" report, yet he knew full-well that it was to be used in a court matter that very day. He appended to that report a dramatic photograph that appeared to support his client's position, fully cognizant that that photograph might well be misleading. What he did was tantamount to Photoshopping in a smoking gun.

During his impassioned plea to the membership during the AAFS business meeting, Mr. Blanco did say something of note. He looked out into the audience and said, "If they can do this to me, they can do it to you!" Well, yes, one would certainly hope so.

Susan Morton, D-ABFDE

Contact the author of this letter for expanded information regarding the technical aspects of the techniques Mr. Blanco used in his examination and his professional background. The expanded information was deleted from the original submission for brevity. —Ed.

A Deliberative Body



Your newly installed CAC Board of Directors includes (at left) President Mary Hong, President Elect Adam Dutra, Regional Director South, Janet Anderson-Seaquist, Membership Secretary Patricia Huck, Recording Secretary Jamie Miller, Treasurer Michael Parigian, Editorial Secretary Greg Matheson, Immediate Past President Jennifer Mihalovich. Regional Director North Jeanette Wallin is shown at left in the top photo.