



Questioned Documents Examination Test No. 17-521 Summary Report

This test was sent to 249 participants. Each sample pack consisted of a two-page waiver document for a local 5K charity race (Q1). Participants were requested to analyze the questioned waiver to determine if the document demonstrated evidence of alteration following its completion by the race participant. Data were returned from 213 participants (86% response rate) and are compiled into the following tables:

	<u>Page</u>
<u>Manufacturer's Information</u>	<u>2</u>
<u>Summary Comments</u>	<u>3</u>
<u>Table 1: Examination Results</u>	<u>4</u>
<u>Table 2: Methods and Observations</u>	<u>8</u>
<u>Table 3: Conclusions</u>	<u>65</u>
<u>Table 4: Additional Comments</u>	<u>84</u>
<u>Appendix: Data Sheet</u>	<u>88</u>

This report contains the data received from the participants in this test. Since these participants are located in many countries around the world, and it is their option how the samples are to be used (e.g., training exercise, known or blind proficiency testing, research and development of new techniques, etc.), the results compiled in the Summary Report are not intended to be an overview of the quality of work performed in the profession and cannot be interpreted as such. The Summary Comments are included for the benefit of participants to assist with maintaining or enhancing the quality of their results. These comments are not intended to reflect the general state of the art within the profession.

Participant results are reported using a randomly assigned "WebCode". This code maintains participant's anonymity, provides linking of the various report sections, and will change with every report.

Manufacturer's Information

Each sample set contained one item: Item Q1, a two-page waiver form for a local 5K charity race. A race participant alleged that her completed form was subsequently altered to remove liability from the race organizers for injuries she sustained. Participants were asked to examine the item and determine if the questioned form demonstrated any signs of alteration.

SAMPLE PREPARATION-

The two-page document was prepared in Microsoft Word and printed on Hammermill Copy Plus white copy paper using a laser printer. The pages were stapled together in the upper left-hand corner, and the document was placed on a clipboard, unsecured by the clip. Using a Pentel RSVP medium-weight black ballpoint pen, the writer completed the first page of the form. The first page was folded behind the second page along the staple, and then the writer filled in the second page with the same pen. The first page was then flipped back to the front. An item label was affixed to the upper right-hand corner of the first page of the document.

SAMPLE SET ASSEMBLY-

After quality reviews by a second individual were complete, each test item was packaged into a sample set envelope between protective chipboard and sealed with clear tape. Following predistribution testing, each sample set envelope was sealed with evidence tape and initialed "CTS."

VERIFICATION-

Predistribution examiners determined the questioned item (Q1) did not exhibit signs of alteration following its completion. This was supported by the following observations: consistency in printing technology and font styles for both pages of the document; a single staple puncture through both pages and page folds aligned with its placement; consistent UV and IR reactions of the paper and pen ink from both pages; and recovery of indentations on page 2 that align with the handwritten entries of page 1 in conjunction with indentations on page 1 that align with the handwritten entries on page 2.

Summary Comments

Each sample set consisted of a two-page waiver document for a local charity race (Q1). The race participant alleges that the waiver had been altered following her completion of the form in order to waive liability for her injuries sustained during the race. The Q1 document was not altered following its completion by the participant (Refer to the Manufacturer's Information for preparation details).

For question 1, "Can it be confirmed that the race waiver was altered following its completion by the participant?", 95.3% of responding participants reported that the waiver was not altered ("E", 149 participants) or was probably not altered ("D", 53 participants). Eight participants (3.8%) could not determine if the waiver was altered ("C"). Two participants (0.9%) determined that the waiver was probably altered ("B").

A majority of participants provided the following observations to support their conclusion that the form had not been altered following its completion: Both pages of the form were stapled together with no indications of staple removal or re-stapling; no physical evidence of erasures or modifications to the paper or laser printed text in the document; consistent ink and paper characteristics between both pages; and page 1 handwriting indentations recovered from the face of page 2, along with page 2 handwriting indentations recovered from the face of page 1. Some participants noted that since the complainant identified the handwriting as appearing authentic, no handwriting examination was conducted; however, others elected to compare the handwriting between the two pages and found them to be similar, although not definitively so.

Across the 213 responding participants, 850 methods of analysis were reported in total. Some of these methods were reported more than once by a single participant, indicating that the technique was possibly performed more than once to examine different features of the document. The most commonly reported technique utilized was Video Spectral Comparator (VSC), reported 179 times; it was frequently used for determining optical properties of the document. Other frequently reported methods include ESDA (140) for indented writing detection, Microscopic Examination (116), and Visual Examination (93). The methods listed in the response summary are the preloaded options for selection via the CTS Portal and do not reflect all answers provided by participants.

Examination Results

Based on the findings of your examination, can it be confirmed that the race waiver was altered following its completion by the participant?

Response Key:

- A. The questioned waiver WAS ALTERED following its completion by the participant.
 B. The questioned waiver WAS PROBABLY ALTERED following its completion by the participant.
 C. CANNOT DETERMINE whether or not the questioned waiver was altered following its completion by the participant.
 D. The questioned waiver WAS PROBABLY NOT ALTERED following its completion by the participant.
 E. The questioned waiver WAS NOT ALTERED following its completion by the participant.

TABLE 1

WebCode	Q1	WebCode	Q1	WebCode	Q1
23QQHP	E	4EAGRH	E	7NTBFK	E
29JTMP	D	4F6VGW	E	7RW7ZM	D
2JDBWN	E	4JRG9J	C	7T4JLV	E
2JWAUM	E	4JT8HM	E	86EF2J	E
2NNFHA	D	4MAJCH	E	8HM4AF	E
2NPEK6	E	4N3NJA	E	8K6D6Y	C
2UXHUT	D	4QNC8H	E	8L3NZ3	E
2XE3HT	B	6AFMPB	E	8RTZZ6	E
2XU4MG	E	6BTCTM	D	9RKGRR	E
2Y8VKC	D	6FJL3L	E	9VJUBB	E
37NRVR	E	6U4297	D	A9NE89	E
38EYXF	E	6VBNEJ	E	AEDQPK	D
38GJYB	D	6YF7Q7	D	AGWT8P	E
3BHQ7G	E	6YW2NM	E	AK6UHN	E
3CAL3B	D	73RCV7	E	AM8X4J	E
427REQ	E	743EJQ	E	AQ4LH6	E
436WTZ	E	77BCBM	D	AVZ7QV	C
4AH7Q7	E	7ADEWG	E	AZ9NPN	E
4BWE6M	E	7KBBYJ	E	B8BZJZ	E

TABLE 1

WebCode	Q1	WebCode	Q1	WebCode	Q1
CDE7RB	E	F9RN6A	E	JWGK83	E
CDRTAP	E	FEC2MA	B	K3LR2B	E
CEQYQJ	C	FJ682C	D	KDPVDZ	D
CF2ZDH	E	FPGTEP	E	KGLP7V	E
CTBJ9R	E	FYCD7F	E	KQRMX6	D
CXHAAC	D	FZC3ZD	E	L267V8	E
CXJZCY	E	G3WDA3	E	LBF9C2	E
CZ6LDN	D	G8TXDL	E	LCBT7R	E
D4N37T	E	G9KZZ2	E	LF98V3	C
D799BV	D	GJN8TT	E	LHBGAD	E
D7UNUT	E	GMJ3JU	E	LN3FA3	E
DBHBMD	E	GPCY73	E	LR2WLW	D
DCXRG7	D	GRDWJG	D	LWVWE	E
DP4KDP	E	GVF6GY	E	LZV7QZ	E
DP6FXG	E	H6XWPA	D	M4Q8CE	E
DQUNZ6	E	H7EV8D	C	MDHPXM	E
DW3AN3	E	HDQX4E	E	MGVDKR	E
E7A8DQ	D	HKEWHU	E	MTQHUD	D
EGKNXG	E	HRBPR9	E	N6JKCC	E
ELD2KQ	E	HUX9T7	D	N9E88L	E
EMWKRJ	E	HUYZWT	E	NCZYG3	E
EN34KX	D	J473NY	D	NHQBEK	E
EPV6B9	E	JCYBBB	D	NNRPTU	D
F3439U	D	JH4C9J	D	NQKFEL	D
F6ANPU	D	JKNACG	E	NTMCTA	D

TABLE 1

WebCode	Q1	WebCode	Q1	WebCode	Q1
NVBQGJ	C	RKK7MX	E	VLM3P4	E
NWNKVY	E	RKL2BA	E	VTLUTR	D
NYC28R	E	RKMXQK	E	W2ULXF	E
NYDRFV	E	RMQQKH	E	WGNDGV	D
NZ7MXX	E	RRXEXK	D	WPHFUD	E
P2UFBR	E	RVYLAW	E	X32HHB	E
P2V9C7	E	RWEMEJ	E	X32KEE	E
P42TZ8	E	RYLZX7	E	XDXPEU	E
P9PMM7	E	T64VCF	D	XEGDXA	D
PNBQJ3	E	T7WN8Y	D	XG7KH7	E
PNR3X2	E	TAZG74	E	XHC7PJ	E
PQUTJV	E	TCK7QG	E	XQAUPW	E
Q2DGYF	C	TCMVUD	E	XV3U4R	E
Q36KLV	E	TXJUW3	E	XVWNHM	E
Q4YL8D	E	TY2JH4	E	XVXLTJ	E
Q7K8ZZ	D	UE86J6	E	XTXWY	E
QF7DTX	E	UTNZWG	D	XZXMY8	E
QQCBK9	D	V42KUH	E	YH86JC	D
QUTJ7L	E	V79Z39	E	YLBZ6Z	
QWHPQJ	E	V8HATK	E	YPQ8QE	D
QWY4UM	E	V9TTXN	E	YRXN2Q	E
R2PVHA	E	VAA6FU	E	YYVF8Y	D
R8VANK	E	VAULVW	D	ZB78BY	D
R8XYQW	E	VBG7G	D	ZFXGGR	D
RCRVD3	D	VE46UP	E	ZFZ9JD	E

TABLE 1

WebCode	Q1	WebCode	Q1	WebCode	Q1
ZKT9QA	D				
ZQXAR4	D				
ZRD8LN	E				
ZT82ZJ	E				
ZUKNMD	E				
ZXH9KW	E				

Response Summary		Total Participants: 213
<i>Based on the findings of your examination, can it be confirmed that the race waiver was altered following its completion by the participant?</i>		
Response	Q1	
A	0	Note: The total does not add up to 213 because not all participants reported a response.
B	2	
C	8	
D	53	
E	149	

Response Key:

- A. The questioned waiver WAS ALTERED following its completion by the participant.
- B. The questioned waiver WAS PROBABLY ALTERED following its completion by the participant.
- C. CANNOT DETERMINE whether or not the questioned waiver was altered following its completion by the participant.
- D. The questioned waiver WAS PROBABLY NOT ALTERED following its completion by the participant.
- E. The questioned waiver WAS NOT ALTERED following its completion by the participant.

Methods and Observations

What methods/techniques did you utilize? What observations were made from each method/technique?

TABLE 2

WebCode	Methods/Techniques	Observations
23QQHP	Macroscopic Examination	There is no alteration, especially in point five of the document, in which the risk of being exposed to poisonous plants is noticed. Also, the initials SK present the same form and structure of the other views in the acceptance of each paragraph. Paragraph five, is perfectly aligned with the others, the signs have the same morphology and size, and the inteliteral, interverbal and interlinear spacing are the same. Therefore, there is no technical evidence indicating the alteration of the document.
	Microscopic Examination	There is no alteration, especially in point five of the document
	Video Spectral Comparator (VSC)	Observation with Videocomparador of documents with different levels of radiation from 375 to 750 Nm, not finding differences in the behavior of the inks with which the initials SK were elaborated
29JTMP	Ultraviolet Light	Similar reaction, both pages are optically bright.
	Visual Examination	Both pages are same size and colour. Neither have visible watermarks or security features. Pages are stapled together in top lefthand corner. The top page has been folded upwards over the staple. The bottom page has been folded in the opposite direction. Apart from these creases the pages do not appear heavily handled. The layout of the printing on both pages does not suggest the electronic addition of words or paragraphs on either page.
	Microscopic Examination	Neither page shows evidence of trimming to change sheet size. Fibre quality of both is similar. Both pages have been printed by the same method. The size and format of the typeface is similar on both pages. The staple is within a single set of holes. Paper from page 1 is folded under the paper from page 2 at the edge of the staple holes. Nothing to suggest substitution of the staple.
	Oblique Light	There is no evidence of indented impressions of the handwritten entries of page 1 on page 2. There is no evidence of indented impressions of the handwritten entries of page 2 on page 1. There is no evidence of other indented impressions from other documents.
2JDBWN	Macroscopic Examination	Color, general aspect, fold, staple observation, margins comparison. No difference or abnormality found between the 2 pages or around the paragraph of interest.
	Microscopic Examination	stapler holes, staple, ink observation, printing process, toner comparison. Nothing peculiar was observed. Page 1 consistent with page 2, as was the paragraph of interest. No fiber disturbance on all the surface of both pages.
	Indented Writing	oblique lightning and ESDA performed. Indented writings from page 1 found on page 2 and indented writing from page 2 was found on page 1.
	Video Spectral Comparator (VSC)	Ink comparison, UV and IR comparison on paper, inks. The ink from all the entry were found to react in the same way under all examination. Paper from page 1 and 2 react the same way as well.
	Transmitted Light	opacity, paper formation, alignment, surface disturbance. Page 1 the same as page 2, no fiber lift.
	Overlays	character font, disposition, margins, ESDA results, alignment. Esda result consistent in it's position with the visible part. Nothing peculiar or abnormal.

TABLE 2

WebCode	Methods/Techniques	Observations
	Handwriting Examination	comparison between initials found them to be probably by same person.
2JWAUM	Visual Examination	General visual examination did not find any inconsistencies in any document formatting or typographic entries.
	Ultraviolet Light	No differences observed in reaction of substrate (pages) to UV light.
	Infrared Light	Infrared absorption and fluorescence examinations did not reveal any differences in the ink entries on any of the pages.
	Microscopic Examination	The characteristics of the toner print are consistent throughout the document, no differences observed.
	ESDA	Impressions on the second page can be sourced precisely to the initials on the first page. Impressions on the first page can be sourced precisely to the entries on the second page.
2NNFHA	Visual Examination	One staple hole in each document. There is also a fold or crease in both documents that match up very well in size and location. Nothing unusual noted.
	Microscopic Examination	Noted the presence of toner in printed text and original ink in areas where handwriting, initials and signature were located. No paper fiber disturbances were noted.
	Indented Writing	Indented writing (the initials) from the front page were located on the 2nd page and handwriting impressions from the 2nd page were located on the front page. This indicates that when the handwriting on the 2nd page were made the front page was underneath the 2nd page. Oblique light did not reveal any other indentations. No evidence of alterations were noted.
	Video Spectral Comparator (VSC)	Examined both documents under ultraviolet light and both fluoresced similarly. No optical differences noted in IR between the inks on both documents. No evidence of alteration noted.
2NPEK6	Visual Examination	The writing ink on both pages 1 and 2 was found to be ballpoint pen ink in a similar shade of black.
	Microscopic Examination	The printing on both pages 1 and 2 was found to be made up of black toner, with similar appearance under the stereo-microscope, including that of clause 5.
	Indented Writing	No indented writing was observed on both pages 1 and 2 using oblique lighting.
	ESDA	Handwriting impressions of the writing on page 2 was found on page 1. Handwriting impressions of the writing on page 1 was also found on page 2.
	Handwriting Examination	Limited comparison (letters 'S', 'K' only); Similarities were observed between the comparable letters on page 1 and 2.
	Other - Staple holes	Two staple holes were observed on both pages 1 and 2, plus an additional hole resulting from the stapling process (not relevant to the purpose of determining alteration).
2UXHUT	Visual Examination	No inconsistencies with respect to font and/or spacing and margins within the 2 page document and area in question. One set of staple holes. No cut and paste characteristics noted. No crowding of printing noted. No discoloration of paper noted.

TABLE 2

WebCode	Methods/Techniques	Observations
	ESDA	Indented writing from page 2 of Item 1 (Q1) was observed on page 1 of Item 1 (Q1). Indented writing from page 1 of Item 1(Q1) was observed on page 2 of Item 1 (Q1). The indented writing observed/lifted did not fall over paragraph 5 of page 1.
	Microscopic Examination	All printed text prepared using a toner technology. No paper fiber disturbances noted. No excessive extraneous toner or indications of toner removal.
	Video Spectral Comparator (VSC)	Ink optically consistent throughout. Toner optically consistent throughout. No optical differentiation of paper noted between page 1 and page 2 of Item 1 (Q1).
	Oblique Light	No visible indented writing observed via side light.
	Handwriting Examination	Internal consistency observed in the written entries. Writing appears free and natural.
	Ruler	Measured margins and indentations which were consistent throughout. No irregularities noted.
2XE3HT	Visual Examination Video Spectral Comparator (VSC) Infrared Light	
2XU4MG	Microscopic Examination	Using the Leica Stereomicroscope the document Item 1 was examined. The staple and staple hole, as well as the font, ink, fold, and any disruption in paper fibers in the area in question were examined.
	ESDA	Item 1 both pages front and back were examined using the ESDA to make any impressions as readable as possible and to observe any out of place impressions on the document.
	Video Spectral Comparator (VSC)	Using the VSC 5000 the document was examined using IR, UV and spot fluorescence to observe any ink differentiation.
2Y8VKC	Macroscopic Examination	The handwritten entries on Exhibit 1 (pages 1 and 2) appear to be freely and naturally written; no evidence of simulation, tracing, or disguised writing. The machine printed text on Exhibit 1 (pages 1 and 2) was produced using a Calibri font (or a similar font(s)). Various font sizes were utilized.
	Microscopic Examination	The handwritten entries on Exhibit 1 (pages 1 and 2) appear to be freely and naturally written; no evidence of simulation, tracing, or disguised writing. The handwritten entries on Exhibit 1 (pages 1 and 2) were written with a non-aqueous based black ink ballpoint pen(s). The non-handwritten text on Exhibit 1 (pages 1 and 2) were produced using an office machine system using toner technology (black toner). No evidence was observed/detected to suggest that the staple in the upper left corner of Exhibit 1 (pages 1 and 2) had been removed or replaced prior to examination.

TABLE 2

WebCode	Methods/Techniques	Observations
	ESDA	Exhibit 1 (pages 1 and 2) were examined for the presence of indented writing (ESDA2; mfd. by Foster & Freeman). Indentations of the handwritten entries originating from the front of Exhibit 1 (page 2) were developed on the front of Exhibit 1 (page 1). Indentations originating from the six (6) "SK" initials on the front of Exhibit 1 (page 1) were developed on the front of Exhibit 1 (page 2). No other indentations of apparent evidentiary value were detected or observed on Exhibit 1 (pages 1-2).
	Oblique Light	Exhibit 1 (pages 1 and 2) were examined using side lighting (Olympus Highlight 3000 with a light bar attachment). No indentations were detected/observed.
	Transmitted Light	Exhibit 1 (pages 1-2) were examined using a transmitted light box. The paper(s) used for Exhibit 1 (pages 1 and 2) display similar visual properties and could not be differentiated using the techniques applied. No evidence of erasures or obliterations was detected or observed.
	Ultraviolet Light	Exhibit 1 (pages 1 and 2) was examined with ultraviolet light (Chromato-vue; mfd. by Ultra-Violet Products, Inc.) using 1) Long Wave UV, Short Wave UV, and Long wave(UV) + Short Wave (UV). The paper(s) used to create Exhibit 1 (pages 1 and 2) display similar optical properties and could not be differentiated using the techniques applied.
	Infrared Light	The handwritten entries on Exhibit 1 (pages 1 and 2) were examined using the VSC 6000/HS (mfd. Foster & Freeman). The ink(s) used to create the handwritten entries could not be differentiated using IR and IRL techniques. The non-handwritten entries on Exhibit 1 (pages 1 and 2) were examined using the VSC 6000/HS (mfd. Foster & Freeman). The black toner(s) used to create the non-handwritten entries could not be differentiated using IR and IRL techniques.
	Ruler	The horizontal and vertical alignment of the machine printed text on Exhibit 1 (pages 1 and 2) was examined using typewriter grids and by using Adobe Photoshop CC 2015.5 to create guidelines to assess and evaluate the documents for evidence of a "line insertion". Evidence of a line insertion was not detected or observed.
37NRVR	ESDA	Indented writing was developed from each page of Exhibit Q1. All handwritten entries on page 1 were indented on page 2 and all handwritten entries on page 2 were indented on page 1. All of the developed indentations align with their corresponding ink pen entries.
	Microscopic Examination	Magnification was used to examine printing processes (toner and ink pen), staple damage, handwriting strokes (i.e., pen direction) text alignment and evidence of alterations.
	Video Spectral Comparator (VSC)	Use of flood, transmitted, infrared and ultraviolet light sources showed the Exhibit Q1 paper has no security features. All ink pen entries respond consistently with one another using alternate light sources. A grid pattern revealed no evidence that the questioned #5 paragraph was inserted into Exhibit Q1.
38EYXF	Other - Nirvis Docucenter	NIRVIS DOCUCENTER: 1. INFRARED LIGHT FOR INK EXAMINATION. 2. ULTRA VIOLET LIGHT FOR CHEMICAL ERASURES AND ALTERATIONS. 3. SIDE LIGHTING FOR MECHANICAL ERASURES AND ALTERATIONS. 4. MAGNIFICATION AND WHITE LIGHT FOR STAPLE AND STAPLE HOLES.

TABLE 2

WebCode	Methods/Techniques	Observations
	ESDA	THE INDENTATION ON PAGE 2 REVEALED THE LETTERS (SK). THE LETTERS (SK) WHICH MATCHES THE WRITING ON PAGE 1, WHEN SUPERIMPOSED TO EACH OTHER UNDER FLOOD LIGHT USING THE VSC-6000.
	Video Spectral Comparator (VSC)	THE INDENTATION ON PAGE 2 REVEALED THE LETTERS (SK). THE LETTERS (SK) WHICH MATCHES THE WRITING ON PAGE 1, WHEN SUPERIMPOSED TO EACH OTHER UNDER FLOOD LIGHT USING THE VSC-6000.
38GJYB	Visual Examination	1) The paper fold in Q1a aligns with the fold in Q1b. 2) The font used to print the text on Q1 was determined by me to be Calibri (or similar). The font size of the main body of text on Q1 is approximately 11 points. 3) The left margin of each of the numbered paragraphs on Q1a is in alignment and no additions were observed between lines of text or at the end of sentences or paragraphs.
	Microscopic Examination	1)Q1a and Q1b do not bear any evidence of having been stapled more than one (1) time as would be expected if a page substitution had occurred. 2) All of the machine generated text on Q1 was produced with an electrophotographic process, such as laser printing or photocopying.
	ESDA	Indented impressions of the handprinted initials on Q1a were developed on Q1b. These indentations provide evidence that Q1a was on top of Q1b when the initials were written on Q1a. Indented impressions of the handprinting and signature on Q1b were developed on Q1a. These indentations provide evidence that Q1b was on top of Q1a when these markings were made on Q1b.
	Video Spectral Comparator (VSC)	Q1 was examined using various wavelengths of radiation. No alterations, additions, obliterations, or erasures were observed. The optical brighteners in Q1a and Q1b react similarly under 365nm UV.
3BHQ7G	Video Spectral Comparator (VSC)	The full manuscript was made with black ink pen, the ink reacted equal to the different lights, intensities and wavelengths.
	Microscopic Examination	Printed texts, both in on page 1 and 2, retain the same typeface, size and printing system, as well as the margins. Besides it presents the same physical characteristics on both pages.
3CAL3B	Video Spectral Comparator (VSC)	No optical differences observed between the 2 pages of the waiver using UV. No optical differences observed with the ink using IR.
	Microscopic Examination	Ballpoint pen used in handwritten entries
	ESDA	Impressions found on the first page were from the writing on the second page of the waiver. Impressions found on the 2nd page of the waiver were from the writing on the first page of the waiver.
	Visual Examination	Visual exam did not reveal any differences in the font used to create each paragraph.
427REQ	ESDA	Using Electrostatic Detection Apparatus (ESDA), indented impression of handwriting was deciphered on the page 1 and page 2 of "Q1". The deciphered entries on page 1 were the handwritten entries of page 2 whereas the deciphered entries on page 2 were the handwritten entries of page 1.
	Visual Examination	It was observed that the printed contents at para 1 to para 6 were consistent in font type, font size and formatting.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	The inks of handwritten entries on page 1 and page 2 fluoresce at the same wavelength under spotlight (infrared luminescence). There was no difference in the ink property for the overall printed entries for page 1 and page 2 under ultraviolet light and infrared light.
436WTZ	Visual Examination	A visual examination of the document in question revealed that the body of the letter is of a similar type font. The type font size of paragraphs is one or 2 'points' smaller than that of the opening line (viz., " ... in consideration of my participation ...") on page 1 and the closing paragraph on page 2 (viz., "Having read this waiver ..."). The spacing between paragraph 7); the closing paragraph and "Print name" is equal in size.
	Video Spectral Comparator (VSC)	An UV and transmitted light inspection (making use of the VSC 400) of the 2 pages revealed no anomalies in respect of paper consistency, colour and texture. An infrared inspection did not reveal any irregularities in respect of printing ink/toner nor the ink of the initials ("SK").
	Microscopic Examination	The surface of the pages were inspected microscopically, employing side (oblique) illumination which could reveal irregularities in the paper fibres. The pages do not display unusual fibre disturbances in any area.
	Handwriting Examination	The initials "SK" are written in upper-case print script and, although limited in number, appear to be mutually consistent in respect of size, design and construction. Compared with corresponding letters within the written personal particulars on age 2, the I found the evidence to strongly support the proposition that the writing was written by one and the same writer.
	ESDA	An electrostatic test revealed no irregular or unusual indentions on both pages.
4AH7Q7	Visual Examination	The 2 pages of Q1 were stapled together with the presence of only one set of staple holes. This indicates that page one has not been substituted in its entirety. The presence of only one set of staple holes also negates the possibility that the typed text on page one has been manipulated following the application of the handwritten inked entries.
	Infrared Light	The handwritten inked entries on both pages of Q1 could not be differentiated using non-destructive testing techniques. This does not necessarily mean that the same ink was used for each handwritten entry.
	ESDA	The handwritten inked entries on page one of Q1 appear as indented writing on page 2. The handwritten inked entries on page two of Q1 appear as indented writing on page 1. This negates the possibility that page one has been substituted following the execution of the handwritten inked entries. This demonstrates that both pages of Q1 were together during the execution of the handwritten inked entries.
4BWE6M	ESDA	The indented writings visualized on page 1 of questioned waiver are corresponding to handwritings from page 2. And vice versa, the indented writings visualized on page 2 are corresponding to handwritings from page 1.
	Macroscopic/Microscopic Examination	Handwriting lines from page 1 and 2 were wrote on printed text of questioned waiver. No difference between fonts and the structure of printed letters from next paragraph and points form page 1 and 2. Paper of page 1 and 2 has the same properties.
	Video Spectral Comparator (VSC)	Optical properties (absorption and luminescence) of black ballpoint pen lines form page 1 and 2 are compatible.

TABLE 2

WebCode	Methods/Techniques	Observations
	Other - toner examination – FTIR	Chemical composition of toner from seven points of the questioned waiver and paragraph situated below point seven are the same.
4EAGRH	Visual Examination	one staple in upper left corner, one staple hole One fold beneath staple
	Ruler	E ruler font on pages 1 and 2 appears to be 10pt sans serif font with 9pt line spacing with in acknowledgements #1 thru #7 ruler-space between left side of paper and paragraphs for acknowledgements #1 thru #7 consistent at approx. 1.5 in
	Oblique Light	did not observe indented writing on page 1 or page 2 with oblique light
	Microscopic Examination	could not differentiate pen ink or printer ink on pages 1 and 2 from each other
	Video Spectral Comparator (VSC)	could not differentiate white copy paper in Q1 with various light sources (UV, IR, transmitted) could not differentiate black ball point pen ink with various light sources (IR or UV) could not differentiate black toner with various light sources (IR or UV) did not observe indented writing on page 1 or page 2 with side lights
	ESDA	developed indented writing on front of page 1- this writing is consistent in content and location with the written entries on page 2 developed indented writing on front of page 2- this writing is consistent in content and location with the written entries on page 1 no indented writing developed on back of page 1 or page 2
4F6VGW	Video Spectral Comparator (VSC)	The questioned document was submitted to light sources in the different wavelengths (UV, VISIBLE, IR) and magnification, of the spectral comparator video VSC6000HS, Finding that the questioned document does not present alterations.
4JRG9J	ESDA	Evidence („indented writing“) found on page 2 (6 initials „SK“, fitting precisely the initials on page 1).
	Macroscopic/Microscopic Examination	Printing process: Electrophotography (magnetic toner) on page 1 and 2. Staples: puncture holes in good condition / not stretched out. No evidence of tampering (e.g. page replacement) found. Font type on page 1 cannot be distinguished from page 2 / no difference regarding font type in the area concerned (section 5; „poisonous plants“). Writing material on page 1 and 2 cannot be distinguished from page 2 / No difference regarding writing material (handwriting) in the area concerned (initials in section 5; „poisonous plants“)
	Other - Examination in extravisual range	No Evidence found (UV, IR absorption, IR luminescence, UV dullness of the paper)
	Thickness	No differences between page 1 and page 2
	Transmitted Light	No evidence found
	Oblique Light	No evidence found
	Other - Line parallelism	No evidence found
	Other - FT-IR	Toner on page 1 cannot be distinguished from toner on page 2 Paper on page 1 cannot be distinguished from paper on page 2
	Other - HPLC	Ballpoint pen ink on page 1 cannot be distinguished from ballpoint pen ink on page 2

TABLE 2

WebCode	Methods/Techniques	Observations
	Other - Transmitted light Scanner / Software „Image J“	Paper of page 1 cannot be distinguished from paper of page 2 (mesh structure not distinguishable)
4JT8HM	Magnification	to check document types and characters
	Macroscopic/Microscopic Examination	to verify alterations in the substrate of the document
	Other - VSC - 6000	use of ultraviolet light and infrared light to detect substrate damage and ink behavior
4MAJCH	Microscopic Examination	Microscopic examination has revealed that all handwritten information was executed by a ballpoint pen. Characteristics of ballpoint pen gooping, striations and shiny thick paste ink was clearly visible.
	ESDA	Through the use of ESDA indentations revealed on both pages of the questioned race waiver matches the handwritten information completed by the participant. No foreign indentations were found on the document as a sign of alterations.
	Video Spectral Comparator (VSC)	The use of VSC in terms of ink differentiation has also revealed that only one writing instrument was used to execute the handwritten information, which therefore suggest that no alterations were performed on the questioned race waiver.
4N3NJA	Macroscopic Examination	The staple was examined and only one set of holes consistent with the staple were seen. The location of the fold in the paper was consistent between pages one and two. The fonts were examined and no differences were seen in the font on pages one and two.
	Microscopic Examination	The toner and the ink were observed under the microscope and no dissimilarities were seen.
	Video Spectral Comparator (VSC)	The ink was examined using the VSC4 and no dissimilarities were seen in the inks or the paper on pages one or two. No watermarks were observed.
	ESDA	Indented writing on page one consistent with the writing on page two and indented writing on page two consistent with the writing on page one was seen. Lifts were taken.
4QNC8H	ESDA	Nothing of significance
	Ultraviolet Light	Normal florescence
	Microscopic Examination	Examination of the printing process and alignment exhibited nothing significant
	Video Spectral Comparator (VSC)	VSC lighting techniques displayed no abnormalities
	Transmitted Light	No watermark observed on either page of the waiver
	Oblique Light	Nothing significant observed
	Visual Examination	Both pages consistent in size, just one set of staple holes and one fold line
6AFMPB	Video Spectral Comparator (VSC)	The reaction of paper under UV light react the same on the whole documents
	Video Spectral Comparator (VSC)	The same writing instrument where use when initializing the documents

TABLE 2

WebCode	Methods/Techniques	Observations
	Overlays	The same font was used when the documents in dispute was produced
6BTCTM	ESDA	Indented writing observed on Item 1
	Video Spectral Comparator (VSC)	Nothing observed (Ink)
	Microscopic Examination	Printing Toner
6FJL3L	Ruler	No significant differences in dimensions found between page one and page two of "Q".
	Thickness	No significant differences in paper thickness found between page one and page two of "Q".
	Transmitted Light	No significant differences in thickness and translucency of paper found. No significant differences in paper weave patterns found.
	Microscopic Examination	Paper: No disturbed paper surface noted. No residual trace of ink or toners found. Paper handling marks: No paper handling marks found. Printing process used: Printings on both pages were produced with toners. No significant differences in the morphology of the toners in the formation of image. Font: No significant differences in design found.
	Video Spectral Comparator (VSC)	No significant differences in optical properties of ink, paper and toners noted.
	ESDA	Indented handwriting impressions: ESDA lift of page one showed handwritten entries that were made on page two. ESDA lift of page two showed handwritten entries that were made on page one. Paper handling marks: No paper handling marks found.
	Macroscopic Examination	Spacing and alignments: No misalignment, irregular spacing or awkward placement of printing noted.
6U4297	Macroscopic Examination	Q-1 1 & 2 documents appeared consistent with each other. Only one set of staple holes was noted attaching the documents. No watermarks appeared in the papers.
	Handwriting Examination	Not performed. S. Kitt is not questioning the handwriting on the Q-1 documents, & thus no known handwriting standards were submitted.
	Microscopic Examination	Q-1 is printed in toner throughout. The font is consistent and there are no misalignments in the text noted.
	ESDA	Q-1 1 ESDA contained impressions of the Q-1 2 handwriting, and these impressions were oriented similar to the Q-1 2 handwritten text. Likewise, the Q-1 2 ESDA contained impressions of the Q-1 1 handwritten text, and these impressions as well were oriented similar to the actual Q-1 1 text.
	Video Spectral Comparator (VSC)	The inks on the questioned documents were examined and were not found to be spectrally different. Q-1 1 & 2 had similar fluorescence under UV examination.
6VBNEJ	Video Spectral Comparator (VSC)	FLOOD LIGHT-THE WORDS "accept"(PAR.5&7) AND "participants" (PAR.4&5) RESPECTIVELY, WERE SUPERIMPOSED TO EACH OTHER TO INDICATE THAT THERE ARE OF THE SAME FONT AND SIZE. FLOOD LIGHT AND SPOT (FLUORESCENCE) UNDER DIFFERENT FILTERS- SHOWS THAT THE INK ON PAGE 1 REACTS THE SAME AS THE ONE ON PAGE 2. INFRARED ABSORPTION USING BAND PASS FILTERS- THE INKS ALSO REACTS THE SAME. UV LIGHT- THE INK AND PAPER REACT THE SAME FOR PAGE 1 AND 2.

TABLE 2

WebCode	Methods/Techniques	Observations
	ESDA	THE INDENTATION ON PAGE 2 REVEALED THE LETTERS (SK). THE LETTERS (SK) WHICH MATCHES THE WRITING ON PAGE 1, WHEN SUPERIMPOSED TO EACH OTHER UNDER FLOOD LIGHT USING THE VSC-6000.
6YF7Q7	Microscopic Examination	No evidence of alteration or insertion noted. Only one staple hole in both exhibits. All inked entries are with ball point pen.
	ESDA	Indentations from Exhibit 1(2) were found on Exhibit 1(1). Indentations from Exhibit 1(1) were found on Exhibit 1(2).
	Video Spectral Comparator (VSC)	No optical differences noted in any of the inked entries on Exhibit 1(1-2).
6YW2NM	Visual Examination	Is a simple and direct to the study document inspection to establish first hand possible irregularities, as printed texts and manuscriturales
	Video Spectral Comparator (VSC)	Through the use of tools such as: infrared: different wavelengths within this field, used to verify the physical behavior of inks that are present in the document; Overlapping of texts: parts of the document (texts), is placed in order to demonstrate the size and interstructural separations; Fluorescence: With the support of various filters, it allows to observe the physical behavior of inks
	Ultraviolet Light	It allows using wavelength of 365 nm note the difference that can present the substrate for some type of wear in the gluing
73RCV7	ESDA	The questioned documents were examined for the presence of any 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. Results as follows: Q1.1 Front - Bears impressions sourced to the original writing found on Q1.2. Q1.1 Back - No meaningful impressions located. Q1.2 Front - Bears impressions sourced to the original writing found on Q1.1. Q1.2 Back - No meaningful impressions located.
	Other - Printing Process Examinations	Q1.1 and Q1.2 (excluding the written entries) were produced with an office machine system utilizing black toner. Toner is utilized in some office machines such as laser printers, photocopiers, and facsimile devices.
	Video Spectral Comparator (VSC)	Various microscopic, infrared, and ultraviolet examinations were performed on the ink(s) used to produce the written entries on Q1.1 and Q1.2. These examinations revealed that the ink(s) within each specific document could not be differentiated and reacted similarly throughout the spectrum. These examinations do not provide a positive identification of the ink formulation, however further chemical testing may be deemed necessary to determine if the ink(s) are the same or different ink formulation.
	Other - Paper Examinations	Q1.1 and Q1.2 were examined with no visible watermarks observed. The two sheets of paper exhibit similar class characteristics, such as size, color, and response to ultraviolet and infrared light sources indicating they may share a common source. However, it should be noted that paper of this type is produced in mass quantity and is available to the average consumer and should not be construed as a positive identification.

TABLE 2

WebCode	Methods/Techniques	Observations
	Other - Type Font/Formating Examinations	A classification of each font was conducted using an online typeface identifier (www.identifont.com). Based on this classification, it revealed that the type font used to produce the toner printed information on Q1.1 and Q1.2 may be, but is not limited to an "Astoria Sans Extra Light" font. Note: the classification is not to be construed as positive identification of the fonts. The documents contained multiple font sizes, but there were no significant differences found in the font sizes or styles within each section of the document. Additionally, measurements of the line spacing were conducted on each of the documents. There were no significant differences found in the horizontal line spacing used to produce the text listing the liability dangers (document sections numbered 1-7) on Q1.1 and Q1.2. Measurements were taken on Q1.1 to determine if there were differences within the left margin formatting for the text listing the liability dangers (document sections numbered 1-6). Measurements showed no significant differences in the left margin formatting for Q1.1 sections #1-6.
	Magnification	Writing appears to be naturally written bearing good line quality, hooks and tapering of beginning/ending strokes. Microscopic examinations were conducted on several of the locations where the written ink entries intersected the toner printed sections of the Q1.1 and Q1.2 documents. Spectral reflectance can be observed in each of these intersecting locations demonstrating that the ink is on top of the toner.
743EJQ	Visual Examination	There is not found crowded or awkward placement of writing and printed text, and also not found different fonts and sizes. Q1 is not found an obscuring substance, smearing, uneven margins, irregular spacing and alignment.
	Video Spectral Comparator (VSC)	There was no significant difference in the fluorescence reaction of paper between two pages of Q1. There is no characteristics to show multiple writing instruments.
	Microscopic Examination	There was no significant difference in the fiber shape of paper between two pages of Q1. Check the stapler stapling position of Q1 without repeat binding. The printed texts of Q1 are made of toners, and their distribution was no significant difference
	ESDA	Page 1 of Q1 is found the indented handwriting that contains the Handwriting of Page 2 of Q1, and also Page 2 of Q1 is found the indented handwriting that contains the Handwriting of Page 1 of Q1.
77BCBM	Transmitted Light	Item 1 (Q1) - Negative Watermarks
	Microscopic Examination	Item 1 (Q1) - Printing Process, Toner Technology. Original ink handwriting.
	Video Spectral Comparator (VSC)	Item 1 (Q1) - Optical properties of handwritten ink entries and paper consistency.
	ESDA	Item 1 (Q1) - Indented writing, pages 1 and 2
	Overlays	Item 1 (Q1) - Original handwritten ink entries overlay with indented writing on pages 1 and 2 and similar font style/size on pages 1 and 2.
	Thickness	Digital calipers, paper thickness, Item 1 (Q1), pages 1 and 2, consistency.
7ADEWG	ESDA	For examination of indentation
	Video Spectral Comparator (VSC)	Flood light was used for examination of font size and staple holes

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	Sport light was used for examination of ink reaction
7KBBYJ	Microscopic Examination	This prints on both cards of document were made with the same editing settings such us margines, spacing, interlines.
	Video Spectral Comparator (VSC)	The prints on both cards of document were made using the same kind of toner - the same optical properties.
	Video Spectral Comparator (VSC)	Entries on both cards of documents were done with the same kind of ink - the same optical properties.
	Video Spectral Comparator (VSC)	Optical properties of paper are the same for both document cards.
	Video Spectral Comparator (VSC)	No evidence of chemical or mechanical impact on the document was disclosed.
7NTBFK	Macroscopic/Microscopic Examination	printing process identification and comparaisn, staple examination
	ESDA	writings of page 1 indented on page 2 and vice versa
	Video Spectral Comparator (VSC)	no observed differences between all handwritten entries
	Other - paper examination	no observed differences between the two sheetes of paper; no evidence of erasures or ink "washing"
7RW7ZM	Visual Examination	No alterations detected
	ESDA	No indentations of unknown value were observed
	Macroscopic/Microscopic Examination	All printing is toner, all handwriting ink is black ballpoint
7T4JLV	ESDA	Indentations present on either page match the information on the other page. No additional or misaligned information was observed.
	Infrared Light	No difference in the inks present on the pages was observed.
	Microscopic Examination	No difference in fonts, font sizes or alignment of the text was observed.
86EF2J	Microscopic Examination	HALF TONE PRINTING PROCESS, CRISP LINES OF PRINTING IND, LITHOGRAPHIC OFFSET PROCESS IND PHOTOCOPIES
	Video Spectral Comparator (VSC)	INITIALS AND HANDWRITTEN PERSONAL INFORMATION BLK BALLPOINT - CONSISTENT DROPS AT 695-715
	ESDA	INDENTATIONS ON FRONT OF PG. 1 FROM PG. 2, INDICATIONS PG. 2 ON TOP OF PG. 1 WHEN EXECUTED
	Other - VISUAL	FOLDS AT TOP OF BOTH PGS, DIRECTIONS INDICATE PG 2 OF TOP OF PG 1 WHEN COMPLETED
	Handwriting Examination	INTRACOMPARISON OF INITIALS ARE CONSISTENT
	Other - LATENTS AND DNA	PROCESS DOCUMENT FOR LATENT PRINTS AND DNA SWABS.
8HM4AF	Visual Examination	No physical alterations were observed
	Ultraviolet Light	The writing inks reacts the same under Ultraviolet Light

TABLE 2

WebCode	Methods/Techniques	Observations
	ESDA	Indentations of writing "SK" appears on the second page.
8K6D6Y	Microscopic Examination Micrometer Infrared Light	
8L3NZ3	Visual Examination ESDA Microscopic Examination Oblique Light Video Spectral Comparator (VSC) Handwriting Examination Ruler Transmitted Light	No extra holes on either page. No significant differences in the general appearance or the positioning of the printing between pages 1 and 2. Page 2: Indented impressions matching the handwritten entries "SK" on page 1 Monochrome toner, both pages 1 and 2. No significant differences in the appearance, details or positioning of the printing. The staple shows no signs of tampering. No signs of scraping or erasure of texts. The entries made with pen on pages 1 and 2 were compared. No significant differences between the inks were found. It was assessed whether handwriting examination of "SK" entries on pages 1 and 2 could lead to any significant conclusion. The outcome was that there wasn't enough data to be analysed. Positioning of the indented impressions on page 2 match those of handwritten entries found on page 1. No signs of scraping or erasure of texts.
8RTZZ6	Visual Examination ESDA Thickness Other - Docucenter expert Magnification	pages 1 and 2 have the same aspect:same dimension, same colour, same text organization and same font. The fold lines and the staples marks on pages 1 and 2 point out that both pages were stapled when the texts were written. handwriting on page 1 is revealed on page 2 and handwriting and signature on page 2 are revealed on page 1 Pages 1 and 2 have the same thickness the fluorescence of both sheets of paper is the same; the ballpens inks have the same spectral properties On pages 1 and 2, toner presents the same aspect; on page 1, there isn't any forgery mark; on page 1, section 5 of the waiver form hasn't been added.
9RKGRR	Visual Examination Video Spectral Comparator (VSC) Infrared Light	
9VJUBB	Visual Examination Microscopic Examination Ultraviolet Light	

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	
A9NE89	ESDA	Writing indentations of the original writing on page "1" were detected on page "2". Writing indentations of the original writing on page "2" were detected on page "1".
	Video Spectral Comparator (VSC)	Magnification, flood light, UV light, Transmitted light, spot light (fluorescence) were used and no evidence of alterations and/or erasures could be observed.
AEDQPK	Visual Examination	One staple - both pages have one set of staple holes - top/left corner; Fold line - top/left corner - both pages
	Other - Visual Examination - Measurement	Consistent spacing between paragraphs - page 1
	Microscopic Examination	Document created using toner process
	Other - Regula - Video Scope	Magnetic printing
	Indented Writing	Indentations on Q1 page 1 are of Q1 page 2 entries; indentations on Q1 page 2 are of Q1 page 1 entries
	Video Spectral Comparator (VSC)	IR absorbance and IR luminescence - all ballpen entries same - positive; ultraviolet - all ballpen entries same - negative
AGWT8P	ESDA	Indentations "sk" were observed on page 2
	Video Spectral Comparator (VSC)	Infrared and magnification for examination of ink. the pen used on the form reacted the same
	Video Spectral Comparator (VSC)	Floodlight: the font on words are the same.
AK6UHN	Visual Examination	examined for indications of restapling in document (no inconsistency found)
	Microscopic Examination	print process (toner consistent throughout). written entries and signature (black ballpoint throughout)
	Macroscopic/Microscopic Examination	font uniformity, interlinear spacing and alignment (no inconsistencies). fiber distortions or indications of obliterations (no indications present)
	Video Spectral Comparator (VSC)	paper and ink character comparison between Q1 and Q2 (no observable differences)
	ESDA	Q1 writing indented on Q2. Q2 writing indented on Q1. Alignment of indentations corresponds to entries on questioned documents.
AM8X4J	Macroscopic/Microscopic Examination	No differences or alterations noted regarding font, spacing, formatting, ink or printing process on Exhibit Q1 (1 and 2). The machine-generated portions of Exhibit Q1 (1 and 2) were produced with toner technology. The handwritten entries were produced with a black ballpoint ink. See images [images not submitted].
	Video Spectral Comparator (VSC)	No ink or paper differences or alterations noted on Exhibit Q1 (1 and 2). See images [images not submitted].
	Other - Photoshop - Overlays and Measurement Tools	No differences or alterations noted regarding spacing, alignment, and formatting on Exhibit Q1 (1 and 2). See images [images not submitted].

TABLE 2

WebCode	Methods/Techniques	Observations
	ESDA	Exhibit Q1 (1) front and back and Exhibit Q1 (2) front and back were positive for handwriting indentations. See images [images not submitted]
	Other - Handwriting	The handwritten entries on Exhibit Q1 (1 and 2) appear to be naturally written and contain a sufficient amount of identifiable handwriting characteristics for comparison with a known writer.
	Other - Scan	Exhibit Q1 (1 and 2) and the original ESDA indentation lifts were digitally scanned and a DVD of the digital images will be retained by the laboratory and returned in the future.
AQ4LH6	ESDA	The placing and size of the indentations on the second page correspond with the writing "SK" on the first page. The folding marks on the document indicate the page were folding when the second page was written and the placing and size of the indentation correspond on the first page of the document
	Ruler	The measurement between sentences in paragraph 5 and distance between paragraphs correspond with the rest of the document
	Visual Examination	The staple holes correspond on the two pages. The printing, font type size correspond with the rest of the document
	Other - PROJECTINA	Projectina was use for measurements between sentence and paragraphs
AVZ7QV	Visual Examination	Direct Observation, the front and back document is displayed on both pages, under natural light, but when applying the protocols and procedures to establish posterity in the alteration of the document, it does not apply because we can not apply techniques related to mode, time and place.
AZ9NPN	Macroscopic Examination	Diagonal fold in the upper left corner appearing on both pages. No additional holes apart from the ones created by the staple, but a small hole produced by a staple arm from the back of the second page. Other folds on the bottom right corner appearing on both pages
	Microscopic Examination	Both pages are produced by an electrophotographic process with black toner. Surface (fusing) of toner, toner particles scattered in non-image area, character edges are all uniform between the two pages. Font style and size, line alignment and spacing, left margins are also all uniform between the two pages. Superposition of font was made with Photoshop.
	Video Spectral Comparator (VSC)	Handwriting of initials on page 1 and information handwritten on page 2 are produced with black ballpoint inks exhibiting similar optical and physical properties. Both pages were luminescent under UV 365nm
	ESDA	Indentations were not visible using oblique lighting. ESDA revealed indentations: Handwritten entries from page 2 developed on page 1, with corresponding layout (relative spacing and location). Handwritten entries from page 1 (initials) developed on page 2, with corresponding layout (relative spacing and location)
B8BZJZ	Macroscopic Examination	Overall visual inspection - no differences were noted. Appears to be only one staple set of holes in each page.
	Microscopic Examination	Both pages appear to be prepared with an office machine system that utilizes dry black toner.
	Indented Writing	Indented writing shows that the pages were prepared when the documents were together.
	Infrared Light	No differences were noted in the inks in either absorbance or luminescence. Black ball point on both pages.

TABLE 2

WebCode	Methods/Techniques	Observations
	Ultraviolet Light	No differences were noted between the pages.
	Thickness	Both pages measured 4 thousands of an inch.
	Other - Typewriter Grids	No inconsistencies were noted within the pages or between the pages.
	Ruler	E-Ruler noted no inconsistencies in type font size.
CDE7RB	Microscopic Examination	Area around the disputed paragraph showed no signs of mechanical and chemical erasure. The disputed content, namely "exposure to native poisonous plants" is the same font as that used throughout the document. No evidence of the document being stapled more than once.
	ESDA	Indentations revealed that page 1 and 2 were completed one on top of the other respectively and contained no other indentations that did not correspond with the writing and signature on both documents.
	Infrared Light	Exposure of the documents to luminescence, infra-red luminescence and side lighting revealed no ink differentiation or disturbance to the paper surface, especially around the disputed content.
CDRTAP	ESDA	Indentations were found on both pages of the waiver. Each matching to the information on the other page.
	Infrared Light	No ink differentiation found, inks reacted the same.
CEQYQJ	Oblique Light	
	Video Spectral Comparator (VSC)	
	Infrared Light	
CF2ZDH	Microscopic Examination	Initials on pg 1 original- no signs of alterations on paragraph 5 pg 1- Initials same as pg 2- staple appear not removed indicating pg1 and pg2 not seperated
	ESDA	ESDA on pg2 revealed initials of pg1- ESDA print overlays sigs on pg1
	Video Spectral Comparator (VSC)	Inks react same- IR,UV,FI- No evidence of multiple inks
CTBJ9R	Visual Examination	General overview of document looking for abnormalities or evidence of erasure, interlineation or overwriting. Nothing noted Only one set of staple holes
	Microscopic Examination	Closer inspection revealed document produce using toner technology. Ink entries are black ballpoint pen and are original to both pages. No evidence of alteration in the area of the referenced verbiage.
	Video Spectral Comparator (VSC)	Document examined using all wavelengths available with VSC4Plus. No unusual findings
CXHAAC	Visual Examination	Only one set of staple holes was observed, along with only one fold line on each page of the document. No paper discoloration was observed.
	Ultraviolet Light	No significant observations.
	ESDA	Indentations from the first page of the document were observed on the second page; indentations from the second page of the document were observed on the first page.

TABLE 2

WebCode	Methods/Techniques	Observations
	Ruler	The printed text in question is in alignment with the rest of the text on the document.
	Oblique Light	No significant indentations were observed. No paper fiber disturbances were observed.
	Macroscopic/Microscopic Examination	No evidence of physical cutting/pasting observed. All handwritten entries were made using a black ballpoint pen. The document was produced using toner technology.
CXJZCY	Microscopic Examination	All printed entries produced using black toner. All handwritten entries produced using black ballpoint ink.
	Video Spectral Comparator (VSC)	Inks examined using IRR & IRL - no differences observed. Papers examined using UV, IRL, transmitted light - no differences observed.
	Indented Writing	Indentations detected on Q1a originating from handwritten entries on Q1b. Indentations detected on Q1b originating from handwritten entries on Q1a. No additional indentations detected from unknown sources. All handwritten entries on Q1a and Q1b detected as indentations.
	Other - Font, Formatting, etc.	The font, font size, margins, and formatting of Q1a and Q1b appear consistent. No additional staple holes present.
CZ6LDN	Handwriting Examination	5th initial signature is very Simmler type of initial. Any feature of different element between 1st-6th initial SK of page 1 and 7th initial SK of page 2
	Magnification	1. Any kind of significant indented writing. 2. Simmler toner thickness under oblique light. 3. Any Difference of Surface roughness between 2 paper. 4. No significant Difference of Fluorescence under UV lights between both page. 5. No significant Difference of Refractance spectrum and Fluorescence effect under IR light between handwriting inks of both page. 6. Transparrent light test of 2 sheet of paper: very likely
	Microscopic Examination	Character Pattern of 1and 2 page laser printer : same type
	Other - FT-IR	1.No significant Difference between ATR-IR spectrum of toners between page 1 and page 2. 1.No significant Difference between ATR-IR spectrum of page 1 and page 2 handwriting inks
	Other - TLC	1.No difference between TLC spot pattern of handwriting of 1, 2 page paper
D4N37T	ESDA	The Q1 items (Race Waiver) were processed on the ESDA-2 for impression evidence. Visible indented impression of handwriting and initial of Samantha Kitt were develop on both sides of every pages. No other impressions of evidentiary value were detected.
	Video Spectral Comparator (VSC)	VSC 6000 was used for ink comparison on page 1 and 2. Similarities were observed between all pages. The ink enteries of initial and handwriting on both pages have same spectral properties. Ink used for initial and handwriting on page 1 and 2 flouresces under spot flouresces light. Oblique light was used to examine for indented impression. No visible impression were observed with side light examination on both pages of the race waiver. The computer generated ink and handwritten ink enteries on page 1 and page 2 of race waiver had a similar reaction.

TABLE 2

WebCode	Methods/Techniques	Observations
	Other - FORAM 685-2	No differences in Raman Spectra were noted. The computer generated ink and handwritten ink entries on page 1 and page 2 of race waiver had same spectral properties. All printed text on all page of item Q1 have same spectral properties. All printed text on pages 1 and 2 are using the same ink to print. The inked enters of initial on page 1 have same spectral properties with the ink entries of handwriting on page 2 of race waiver.
D799BV	ESDA	Indentations of the writing from page 2 were observed on the ESDA lift of page 1. Indentations of the writing from page 1 were observed on the ESDA lift of page 2. There were no differences in the indentations or location of the indentations when compared to the writing.
	Video Spectral Comparator (VSC)	No differences in response were observed between the ink initials on page 1.
	Macroscopic/Microscopic Examination	No overwriting, crowded/awkward text or obscuring substances were observed. No differences in the font were observed. Both pages of Q1 were produced by a toner process with personal information, signatures and initials in ink. No guidelines or indentations around any of the initials on were observed. No disturbed paper fibres were observed. No vertical or horizontal misalignments were observed.
	Ultraviolet Light	No difference in the response of the paper to UV.
D7UNUT	ESDA	The Q1 items were processed on the ESDA-2 for impression evidence. Visible indented impression of handwriting and initial of Samantha Kitt were develop on both sides of every pages. No other impressions of evidentiary value were detected.
	Video Spectral Comparator (VSC)	1. VSC6000 used for ink comparison on page 1 and 2. Similarities were observed between all pages. 2. The ink entries of initial and handwriting on both pages have same spectral properties. 3. Ink used for initial and handwriting on page 1 and 2 fluoresces under spot fluoresces light. 4. Oblique light was used to examine for indented impression. No visible impression were observed with side light examination on both pages of the race waiver. 5.The computer generated ink and handwritten ink entries on page 1 and page 2 of race waiver had a similar reaction.
	Other - Foram 685-2	1. No differences in Raman Spectra were noted. 2. The computer generated ink and handwritten ink entries on pages 1 ang page 2 of race waiver had same spectral properties. 3. All printed text on all pages of item Q1 have same spectral properties. All printed text on pages 1 and 2 are using the same ink to print. 3. The inked enters of initial on page 1 have same spectral properties with the ink entries of handwriting on page 2 race waiver.
DBHBMD	Indented Writing	Indented writings have been made visible on both pages.
	Overlays	The indented writings on page 1 are congruent with the handwritings on page 2 and the indented writings on page 2 are congruent with the handwritings on page 1.
	Video Spectral Comparator (VSC)	When comparing the fluorescence (UV and IR) of paper and ball pen ink no differences appear. When examining the paper texture with transmitted light both paper sheets show identical characteristics. No indications of erased writings appear when examining at different wave lengths.
	Microscopic Examination	The characteristic optical image of the toner is equal at every character on both pages. No damages on the paper surface. The paper around the staple does not show any damages which are signs of manipulations.

TABLE 2

WebCode	Methods/Techniques	Observations
DCXRG7	Visual Examination	Handwriting on Item 1 (Q1) appears freely and naturally prepared; only 1 set of staple holes, no spacing or alignment anomalies; font consistent on initialed paragraphs.
	ESDA	Page 1 of Item 1 (Q1) contains impressions from page 2; Page 2 contains impression from page 1; no evidence of paper fiber disturbance.
	Magnification	Determined printing on Item 1 (Q1) was a toner process (melted, mounded beads); handwriting is original ink (soaks into paper fibers). No paper fiber disturbance observed.
	Video Spectral Comparator (VSC)	Paper and inked/toner entries react consistently under IR and spot light/filters on Item 1 (Q1).
	Ruler	spacing/indentation consistent between printed lines and paragraphs on item 1 (Q1).
	Transmitted Light	No watermarks observed on Item 1 (Q1).
	Oblique Light	Indented writing observed on pages 1 and 2 of Item 1 (Q1).
DP4KDP	ESDA	Was used to determine if the indentations on page two (2) corresponds with the writing on page one (1).
	Other - PROJECTINA (NIRVIS)	was used to check the ink reaction or pen used, if it is consistent from page one (1) to page two (2). Applied IR lamination to determine ink reaction or any sorts of alteration that might have taken place.
DP6FXG	Visual Examination	The sheet fixing staple is not modified there are no visible marks of its manipulating.
	ESDA	The first page contains an "SK" indentation at top left corner however the further handwritten entries are not appeared.
	Video Spectral Comparator (VSC)	The handwritten signs contains similar optical features under different excitation (IR, IR-luminescence).
	Microscopic Examination	The document does not consist any marks of manipulation.
	Other - examination of ink magnetism by VSC+Regula	The printed text have similar features under magnetism examination by VSC Suite and Regula 4197 equipment.
DQUNZ6	Video Spectral Comparator (VSC)	Same font size was used on all initialled paragraphs on documents marked "Q1" and "Q2". This was observed under flood light
	ESDA	Indentations of the initials "SK" on document marked "Q1" can be observed/are visible on document marked "Q2".
	Video Spectral Comparator (VSC)	The ink of the writing instrument used on documents marked "Q1" and "Q2" reacts the under Spot light.
	Video Spectral Comparator (VSC)	The staple holding the pages together was not removed following completion of the form by the participant.
	Oblique Light	Observed indentations of the initials "SK" on document marked "Q2"
DW3AN3	Ultraviolet Light	Magnification and Ultra Violet (UV) light for examination of UV features and chemical erasures. No discrepancies could be found.
	ESDA	The writing of the initials at all the paragraphs on page one correspond in size and placing with the indentations of page two. The writing on page two corresponds with the indentations in size and placing on the typed side of document one.

TABLE 2

WebCode	Methods/Techniques	Observations
	Magnification	Magnification and white light for examination of paper and printing, type of fond and fond size and distance between paragraphs and sentences. Magnification and side light for examination of indentations and mechanical erasures. No discrepancies could be found.
	Visual	The staple holding the two pages together only made one set of holes through the paper. Both pages had folding lines at the staple that could indicate that the document was folded in the process of completion.
E7A8DQ	ESDA	Fully aligned impressions of hw entries on Q1-1 (first page) appear on Q1-2 (second page). Fully aligned impressions of hw entries on Q1-2 appear on Q1-1.
	Video Spectral Comparator (VSC)	Ink properties consistent at tested IR/IRL and UV settings. No distinguishing differences noted.
	Microscopic Examination	Consistency in writing features (e.g. alignment, pen pressure, etc.). No distinctive writing instrument characteristic difference between Q1-1 and Q1-2.
EGKNXG	ESDA	To check indentations (for SK) on the second page.
	Infrared Light	To check pen ink absorption on both pages.
	Microscopic Examination	To verify fonts types throughout the document
	Visual Examination	To compare staple holes on both pages.
ELD2KQ	Visual Examination	in order to find possible differences in typeface, size, morphology, interletter spaces, interverbals, possible defects of use and / or manufacture
	Microscopic Examination	in order to verify the seen in the direct observation
	Macroscopic/Microscopic Examination	using different types of illumination, using white, natural light and visible light (side), transmitted (bottom-up) and incidental (top-down) positions, the texts of the questioned document were revised , In order to find possible alterations
	Video Spectral Comparator (VSC)	Ultraviolet light at 365 nm and 254 nm was used to observe evidence of physical or chemical involvement of the substrate. Also by the system of Infrared Absorption (Long passage) with a range of analysis of 645 to 850 nanometers, in order to find possible elements of differentiation
EMWKRJ	Ink Examination:- Visual	No differences were observed on Exhibit Q1.
	Ink Examination:- Ultraviolet	No differences were observed on Exhibit Q1.
	Infrared Absorption	No differences were observed on Exhibit Q1.
	Infrared Fluorescence	No differences were observed on Exhibit Q1.
	Microscopic Examination	No differences were observed in font size and font design on Exhibit Q1.
	Indenter Writing Electrostatic	Page 2 handwriting was observed as indentations on page 1 and Page 1 initials was observed as indentations on Page 2.
	Handwriting Comparison	No differences were observed in the letter formation of the initials and None of the initials on Page 1 were exact overlay of the initial on Page 2.

TABLE 2

WebCode	Methods/Techniques	Observations
EN34KX	Ultraviolet Light	No differences
	ESDA	Indentations from Exhibit 1(1) were found on Exhibit 1(2). Indentations from Exhibit 1(2) were found on Exhibit 1(1).
	Video Spectral Comparator (VSC)	No differences
	Other - Staple Exam	No evidence of being stapled more than once
EPV6B9	ESDA	Indentations of initials written on page one "Q1a" reading "SK" were observed on page two "Q1b" of the questioned waiver document.
	Ultraviolet Light	Pen ink that initialized on page one "Q1a" and (all paragraphs) and pen ink that was used to write on page two "Q1b" reflect the same way under infrared light with band pass filters. (Ink appear, fade and disappear at the same wavelengths with same colour).
	Video Spectral Comparator (VSC)	A physical match of the staple holes on "Q1a" matches the holes on page two "Q1b" and do not indicate any sign of alterations.
	Video Spectral Comparator (VSC)	Font type and size used on page one "Q1a" (paragraph 5) is similar to the font used on page two "Q1b" (paragraph 7) and other initialized paragraphs on page one "Q1a".
	Video Spectral Comparator (VSC)	Both papers, "Q1a" and "Q1b" are UV bright (they reflect blue). Pen inks used on both "Q1a" and "Q1b" do not fluoresce under UV light.
F3439U	ESDA	writing impressions: links p1 and p2 with one another at the time/s of writing entries on both pages. paper: no distinction in appearance, no evidence of chemical or mechanical alteration
	Oblique Light	writing impressions: no impressions detected. paper: no distinction in appearance, no evidence of chemical or mechanical alteration
	Microscopic Examination	writing ink: no distinction made in black ballpoint writing ink. paper: no distinction in appearance, no evidence of chemical or mechanical alteration. printed text: no distinction in print nature, quality or fine details/ characteristics. preliminary examination of initials: no evidence to suggest more than one writer of SK initials but VERY limited (no formal conclusion)
	Video Spectral Comparator (VSC)	writing ink: no distinction made in black ballpoint writing ink. paper: no distinction in appearance, no evidence of chemical or mechanical alteration
	Other - dichroic filters	writing ink: no distinction made in black ballpoint writing ink
	Micrometer	paper: no distinction in dimensions
	Other - typographic ruler	paper: no distinction in dimensions. printed text: no distinction in font style, but differences in font size; consistent within sections of the document; margins consistent; line spacing consistent where it can be usefully compared; alignment consistent
	Other - typographic grid	printed text: no distinction in font style, but differences in font size; consistent within sections of the document; margins consistent; line spacing consistent where it can be usefully compared; alignment consistent
F6ANPU	Macroscopic/Microscopic Examination	Both pages of Q1 appear consistent. Toner is raised above paper surface. No irregularities with the staple holes. similar crease near staple.
	Transmitted Light	No watermarks observed on either page of Q1.

TABLE 2

WebCode	Methods/Techniques	Observations
	ESDA	Both pages of Q1 contained impressions of the hand written entries from the other page.
	Overlays	No irregularities were observed with the type face or line spacing of Q1.
	Video Spectral Comparator (VSC)	No discrepancies were observed in the paper, ink or toner between the 2 pages of Q1.
F9RN6A	ESDA	The same physical mark on the paper caused by rollers and the pick-up mechanism of the machine is revealed. The mentions already present on document are revealed too.
	Macroscopic Examination	The layout is the same on the two pages of the questioned waiver. Concerning the staple, a single perforation is observed on each page.
	Microscopic Examination	The text were produced by electrophography while the handwritten mentions were produced by ballpoint pen. The aspect of the toner is similar, fixed by heating and pressing. No defect are observed.
	Other - Chemical examination (Raman, FTIR, microanalysis-x, HPTLC)	Toners on the two pages have the same composition. Pen's inks are not either differentiated.
	Other - FFT2D	Their wire marks (paper structure) are the same.
FEC2MA	Visual Examination	Deformation of staple and damages of document paper around staple were not observed. The same font was observed (probably font family Calibri or similar). The same sizes of characters at paragraphs and subparagraphs were observed.
	Video Spectral Comparator (VSC)	The same writing ink IR fluorescence was observed. The same UV and IR luminescence of questioned document paper were observed. The same gloss of toner layer at printing text lines was observed.
	ESDA	Two handwriting „SK” from bottom of first page (Points 5 and 6) of document were visualised on the bottom of second page of document
	Macroscopic/Microscopic Examination	The same morfological properties of toner layer was observed. The same distribution of toner particals around characters of printing text were observed. Toner particals under the handwriting ink layer were observed.
	Oblique Light	There are no clearly traces of indentation
	Other - Scanning and Photoshop	Evaluation of asymmetry and formatting
	Macroscopic/Microscopic Examination	All questioned document text lines are parallel. First characters of each text line at paragraph which starts with words „Having read this...” and ends with words „... as outlined above.” slightly shifted to left side relation to first characters of paragraphs below.
	Infrared Light	Same ink properties
	Other - Regula Magmouse 4179	The same magnetic properties and measurments of magnetic flux of toner were observed
	Other - Paper FFT examination	Same FFT patterns. There are some insignificant differences. Same or similar type of paper.
FJ682C	Visual Examination	no indication of staple being removed or multiple staple holes, document is black toner printed, section that is numbered is consistent font style and size, consistent spacing between lines throughout, no indications of cut and past or interlineations, margin lines are consistent

TABLE 2

WebCode	Methods/Techniques	Observations
	ESDA	ESDA make visible indented writing from page 1 on page 2 - this indented writing is from the original inked writing on page 1 and is placed as expected. Indented writing from page 2 was observed on page 1 as expected.
	Video Spectral Comparator (VSC)	no indications of differences in inks - both toner and handwritten ink using Visible, IR, and UV reflectance nor using fluorescence imaging. Also utilized hyperspectral imaging for similar applications
	Microscopic Examination	No indications of chemical stain, abrasion, or differences in toner using microscope
FPGTEP	Other - Visual Examination and Stereomicroscope	1. No alterations such as obliteration, addition, overwriting or erasure were found.
	Ultraviolet Light	2. The print on both pages of Q1 has no difference in UV reaction.
	Other - Ink Examination (IR Luminescence)	3. The pen ink luminescence on both pages of Q1 has no difference
	Other - Font observation	4. The font and the print size on both pages of Q1 are normal.
FYCD7F	Video Spectral Comparator (VSC)	The ink of handwritten "SK" on the waiver document react the same. The printed words on the waiver document react the same.
	Video Spectral Comparator (VSC)	The word "acknowledge" on par 3 and the word "accept" on par 7 were superimposed on the words "acknowledge" and "accept" on par 5 of the waiver document and they match.
	ESDA	Indentations of handwritten "SK" on page 1 are present on page 2 of the waiver document.
FZC3ZD	Visual Examination	No sign of alteration
	Ultraviolet Light	There is no chemical erase
	Infrared Light	There in indifferent in the ink
G3WDA3	Microscopic Examination	All questioned printed texts register the same morphology and structure in their signs. Besides, it present the same distribution and alignment of margins in the graphic plane. Finally, all record equal interverbales, interliterales and interline spacing.
	Video Spectral Comparator (VSC)	Questioned documents exhibit the same chromatic reaction.
	Video Spectral Comparator (VSC)	An equal color reaction is observed in all papers in question.
G8TXDL	Microscopic Examination	Low magnification, observation using incident light illumination.
	Infrared Light	Including broad band illumination for general inspection, narrow band illumination for exciting fluorescent and broad band side lighting.
	Ultraviolet Light	Monochromatic illumination for exciting fluorescent.
G9KZZ2	Ruler	Magnification and measurement with VSC 6000 of the spacing/alignment of the printed content of "Q1-1" and 'Q1-2" shows no inconsistency that can show to the addition of additional printed content or alteration of existing content.

TABLE 2

WebCode	Methods/Techniques	Observations
	Microscopic Examination	Magnification of the stapler holes on "Q1-1" and 'Q1-2" revealed the use of only one (1) stapler. This indicates that no possible page substitutions were made.
	Infrared Light	Magnification and Infra-Red (IR) light at 715NM of the handwriting on "Q1-1" and 'Q1-2" and light fluorescence at between 550-650NM shows similar reaction to the different light sources. This shows to the use of similar type of ink on both pages.
GJN8TT	Microscopic Examination	A handwritten initial "SK" was written at the end of each paragraph 1-7. The printing on the waiver form Q1 was printed by means of toners deposition method. The font size, font design, alignments and printing details of each letter as well as spacing between words were consistent among paragraphs 1-7. No discrepancies in the alignments of margins and spacing between paragraphs (paragraphs 1-7) were found. Visual examination revealed no sign of alteration on the handwritten initials "SK" on page 1, the handwriting and signature on page 2 and the printed letters on both pages 1 and 2.
	Indented writing by ESDA	Indented writing was found on pages 1 and 2. The details and relative positions of the indented writing on page 1 and page 2 were consistent with the corresponding writing on page 2 and page 1 respectively.
	Under ultra-violet and spot lighting by VSC 6000	No discrepancies on the optical properties of the ink were observed.
GMJ3JU	ESDA	No further indented writings on other positions than in daylight visible.
	Microscopic Examination	No significant differences in the appearance of the toner particle on the two pages. Same appearance of scattered toner particles. No differences in the appearance of the handwriting (ball point ink). Furthermore, the laser printing is located under the handwriting.
	Other - Analysis of magnetic toner components	For both pages of the waiver magnetic toner was used.
	Other - HPLC (Analysis of ballpoint ink)	No significant differences in the ink composition was observed.
	Video Spectral Comparator (VSC)	The laser printing and the ballpoint pen entries showed the same behaviour concerning IR-Luminescence and IR-Remission as well as UV-Luminescence.
	Thickness	No significant differences in paper thickness.
	Transmitted Light	No differences concerning cloudiness and colour on Page 1 and 2.
	Oblique Light	The pages were originally attached to each other, there are no indications of a replacement of the staple.
	Other - Ruler or Scanner/Photoshop	The lines are parallel, no deviations.
GPCY73	Microscopic Examination	
	Video Spectral Comparator (VSC)	

TABLE 2

WebCode	Methods/Techniques	Observations
GRDWJG	Visual Examination	All handwritten entries on Q1 appear to be in black ball point ink. Whilst comparisons are limited, I find the initials on page 1 to be consistent amongst themselves and, where comparable, to the handwriting on page 2. One set of staple marks found.
	Microscopic Examination	All handwritten entries on Q1 are in black ball point ink. Q1 has been printed using toner based technology. Features of printing consistent throughout both pages. No visible erasures or abrasions to the paper. Font size, font type, spacing and margins similar across both pages of Q1.
	Video Spectral Comparator (VSC)	Handwritten entries on pages 1 and 2 are in indistinguishable inks. Both pages of Q1 show similar UV properties.
	ESDA	Indented impressions of initials from page 1 of Q1 found on page 2 of Q1. Indented impressions of the handwritten entries on page 2 found on page 1. Entries on page 2 were written while resting on top of page 1. All indented impressions are in alignment.
GVF6GY	Video Spectral Comparator (VSC)	The reaction of writing inks on the two page waiver form is similar under Infrared Light using filters of different wavelength
	Video Spectral Comparator (VSC)	The reaction of the two pages waiver papers is similar under Ultraviolet Light
	Handwriting Examination	Handwriting characteristics on page 1 and 2 of the waiver are similar
	Other - Magnification and font size	The printing and font size of the two page waiver are identical when overlaid each other
H6XWPA	Microscopic Examination	Careful removal of the staple found in the upper left corner of the two page questioned document revealed the direction of paper folds and an additional hole under the staple. Examination to determine if a paragraph was added. No sign of alteration.
	Ultraviolet Light	Various ALS were employed to determine if the ink was wet ink. The ink appeared to be wet ink on both suspect pages.
	Other - rulers, oblique lighting to reveal indented writing, overlays, visual exam	Using oblique lighting no indented writing was observed. Visual examination of the initials under 40X magnification revealed consistent pressure patterns.
H7EV8D	Infrared Light	
	Transmitted Light	
	Visual Examination	
HDQX4E	Video Spectral Comparator (VSC)	The handwritten ink on the waiver form react the same. The printed ink on the waiver form react the same.
	Video Spectral Comparator (VSC)	The word "course" on paragraph 3 was superimposed with the word "course" on paragraph 5. They match. The word "accept" on paragraph 3 was superimposed with the word "accept" on paragraph 5. They match.
HKEWHU	ESDA	Q1a obverse: Positive results-Handwritten entries from page Q1b indented onto Q1a. Q1b obverse: Positive results-Handwritten entries from Q1a indented onto Q1b. Negative results for Q1a rev and Q1b rev
	Oblique Light	negative on Q1a and on Q1b

TABLE 2

WebCode	Methods/Techniques	Observations
	Ultraviolet Light	No differences seen at 365nm, 312nm, and at 254nm between Q1a and Q1b (Exam for optical brightness)
	Infrared Light	Of ink: No differences seen at Black and White IR reflectance at 645nm, 665nm, 695nm, and 715nm (semitransparent at 645nm to total transparent at 715nm) between handwritten inks on Q1a and Q1b. No difference seen at IR Luminescence at RG9(725nm) barrier filter and excitation wavelength of 400-640nm between handwritten inks on Q1a and Q1b.
	Visual Examination	Type font: Paragraphs 1 through 6 on Q1a and paragraph 7 on Q1b are consistent in size and style within themselves. The paper fold at the top left hand corner is present in the same location for each of Q1a and Q1b. The type font spacing is consistent between paragraphs 1 through 7. The type font line vertical/ horizontal alignment is consistent and even between paragraphs 1 through 6.
	Microscopic Examination	Staple hole is consistent with contained staple. No sign of a re-stapling visually and with microscopic examination at 7.5x magnification.
HRBPR9	Visual Examination	Magnifiers of different magnifications: in order to corroborate or not the previously made appreciations of direct way
	Video Spectral Comparator (VSC)	The technique used for the respective analysis was by spectral scanning of the printed and pasty ink, which was observed by the exposure of ultraviolet light, infrared in all its filters. The dubbed technical analysis motif was verified using the optical and light video comparator spectral comparator vsc-6000, where we performed the scanning of the respective printed texts and the pasty ink, from the above it was determined that by applying the procedure no It was evidenced an alteration in the diligenciamiento of the document (pen) nor in the printed texts, which were approached for the respective study.
HUX9T7	ESDA	The handwritten entries on each page are indented onto the other page with alignment consistent with the pages being together when they were completed. No evidence of erasures noted.
	Video Spectral Comparator (VSC)	No evidence of differences in ink observed in the response of any of the ink entries. No evidence of differences in paper stock observed between page 1 & page 2. No evidence of differences in magnetic response between toner in paragraph 5 and other printing.
	Visual Examination	No evidence of multiple staple holes. No misalignment between paragraph 5 and other paragraphs on page 1. No evidence of font differences between paragraph 5 and other paragraphs. No difference in visual appearance of toner printing throughout the document.
HUYZWT	ESDA	Writings on p.1 were made while p.1 was on top of p.2. Writings on p.2 were made while p.2 was on top of p.1
	Video Spectral Comparator (VSC)	Nil evidence of any alteration
	Macroscopic/Microscopic Examination	Nil extraneous staple marks. Paper appears similar. Toner printing appears consistent throughout document. Font and alignment of printing consistent throughout paragraphs 1-5. All initials, signature and other writing is original black ink which is similar in appearance.
	Handwriting Examination	While no comment on authorship can be made, the initials at the end of paragraph 5 appear to be freely written and constructed similarly to the other initials.

TABLE 2

WebCode	Methods/Techniques	Observations
J473NY	Visual Examination	Pages 1 and 2 are approximately the same size, 8.5" x 11". One staple and one set of staple holes were noted in the top left of the document and a crease is visible on both pages.
	Video Spectral Comparator (VSC)	Inked entries on pages 1 and 2 do not appear to be different upon spectral exam with IRR and IRL. No differences in toner were visualized. UV examination showed no differences between pages 1 and 2.
	Oblique Light	No writing was visualized in indented form on either page 1 or 2 using oblique light.
	ESDA	Indented impressions of the entries on page 1 were visualized on page 2 and page 2 entries were visualized on page 1. Page 1 entries were visualized on the ESDA lift for the rear of item 1 and those on page 2 were visualized on the lift of the rear of page 2.
	Micrometer	Both pages of Item Q1 measured .004" in thickness.
	Transmitted Light	No watermarks were noted on either page of Item Q1. No differences in paper composition were noted.
	Overlays	A transparency overlay of the indented impressions from page 1 matched in alignment with a transparency from the original of page 1.
	Microscopic Examination	No differences in toner morphology were noted. Signature and hand printed entries appear devoid of unnatural characteristics or evidence of simulation or tracing.
JCYBBB	Visual Examination	No obvious signs of more than one printer being used. No obvious indications of erasure and or amendments made to the printed text.
	ESDA	Impressions from the handwritten entries on Page 1 appear on Page 2 and vice versa. No impressions from an unknown source appeared.
	Microscopic Examination	No obvious damage to the surface of the paper. No indication of more than one staple being used.
	Video Spectral Comparator (VSC)	All handwritten entries fluoresced at the same wavelength and filter combination. Paper appeared similar under UV.
	Handwriting Examination	No obvious indications of more than one writer.
JH4C9J	Visual Examination	During visual examination of the questioned document no signs of alteration were observed.
	Microscopic Examination	During microscopic examination of the questioned document no signs of alteration were observed.
	Infrared Light	After subjecting the questioned document to a range of different wavelengths of IR light, no signs of alteration were observed.
JKNACG	ESDA	THE INDENTATION ON PAGE 2 REVEALED THE LETTERS (SK). THE LETTERS (SK) WHICH MATCHES THE WRITING ON PAGE 1, WHEN SUPERIMPOSED TO EACH OTHER UNDER FLOOD LIGHT USING THE VSC-6000.
	Video Spectral Comparator (VSC)	THE INDENTATION ON PAGE 2 REVEALED THE LETTERS (SK). THE LETTERS (SK) WHICH MATCHES THE WRITING ON PAGE 1, WHEN SUPERIMPOSED TO EACH OTHER UNDER FLOOD LIGHT USING THE VSC-6000.

TABLE 2

WebCode	Methods/Techniques	Observations
	Other	NIRVIS DOCUCENTER: 1. INFRARED LIGHT FOR INK EXAMINATION 2. ULTRA VIOLET LIGHT FOR CHEMICAL ERASURES AND ALTERATIONS 3. SIDE LIGHTING FOR MECHANICAL ERASURES AND ALTERATIONS 4. MAGNIFICATION AND WHITE LIGHT FOR STAPLE AND STAPLE HOLES.
JWGK83	Microscopic Examination	The lines and the text on the authentic waiver Q1 are manufactured with a laser printer. The signatures and handwritings were written with a black ink (ballpoint).
	Comparison techniques: examination in the NIR-/UV- range	The papers of the two-page waiver (Q1) each show the presence of optical brighteners. The ink of all handwritings on Q1 appear totally similar and there were no differences detected meanwhile the examinations.
K3LR2B	ESDA	Indentations from page 1 are present on page 2 of the document.
	Video Spectral Comparator (VSC)	The line and paragraph spacing used on the questioned paragraph is the same as on the whole document.
	Video Spectral Comparator (VSC)	The ink used on the questioned paragraph is the same as the ink used to sign the whole document.
KDPVDZ	Visual Examination	Visually inspected documents for formatting, font design and size, spacing, insertions, indented writing, variations in ink/print color
	Ultraviolet Light	Examined documents for variations in ink color and paper color.
	ESDA	Examined for impressions on each of the pages.
	Macroscopic Examination	Examined handwriting and text for quality and type.
	Oblique Light	Examined for indented writing and paper fiber disturbance.
	Video Spectral Comparator (VSC)	Examined for variations in the inks.
	Handwriting Examination	Examined for consistency between writing samples.
	Ruler	Examined text for spacing consistency.
KGLP7V	Video Spectral Comparator (VSC)	Flood light under different filters - the ink reacts the same on all paragraphs
	Video Spectral Comparator (VSC)	UV light - the ink and paper reacts the same on all pages
	Video Spectral Comparator (VSC)	Flood light - the words "event" and "Course" were superimpose to each other respectively and shows that the font and size are the same
KQRMX6	Visual Examination	no misalignments detected throughout document in printed text, no watermarks in any of the pages, no difference in font in the text of any paragraph or page, one set of staple holes through both pages and the folds in the pages line up, and no erasures found
	ESDA	Page 1 impressed into Page 2 completely with no misalignments, and Page 2 impressed into Page 1 with no misalignments
	Video Spectral Comparator (VSC)	no differences were seen in the ink formulations for any initials
	Other - Thin Layer Chromatography (TLC) Ink Comparison	no differences found in the dyes contained in the ink formulation throughout document

TABLE 2

WebCode	Methods/Techniques	Observations
	Ultraviolet Light	no evidence of erasures and uniform fluorescence seen across the pages of the document
L267V8	Visual Examination	Not found an sign of alteration
	Microscopic Examination	The letter of word in items from 1 to 7 are the same . The signature at the end of all items are the same .
	Infrared Light	There is no different ink
LBF9C2	Microscopic Examination	Method of production was toner for the form and ink for entries. No evidence of mechanical erasure. No unfilled staple holes. Font style was consistent
	Oblique Light	No indented writing observed with side light. No evidence of mechanical erasure.
	Ultraviolet Light	No evidence of chemical staining indicating chemical erasure. UV response of the paper was consistent.
	Infrared Light	Ink response was consistent. No evidence of chemical erasure
	Overlays	Alignment grids showed no evidence of interlineation or alteration of the preprinted form.
	ESDA	Indented writing observed on both pages of Q1. See notes.
LCBT7R	Visual Examination	Q1.1 and Q1.2 were joined together with a single staple. No other staple holes were located in either page. In addition, a fold was observed in the upper left hand corner of the page. The documents are original documents bearing writing in what appears to be black ballpoint pen ink.
	Indented Writing	These examinations revealed impressions in the front of Q1.1 and Q1.2. The impressions in the front of Q1.1 are sourced to the original writing on the front Q1.2 and the impressions in the front of Q1.2 are sourced to the original writing on the front of Q1.1. This means that Q1.1 and Q1.2 were together when the original writing was written on each respective page.
	Ultraviolet Light	The paper used to produce Q1.1 and Q1.2 was examined with transmitted light to determine if a watermark was present in each of the pages. Neither of the pages examined contained a watermark. Subsequent microscopic and optical examinations were conducted. The two sheets of paper exhibit similar physical characteristics in paper size, hue, and thickness (.004" – see margin/measurement chart). In addition, optical characteristics revealed similar ultraviolet light responses to the paper. Based on these similarities, there are indications that the paper used to produce Q1.1 and Q1.2 may share a common source.
	Other - Printing Process Examinations	The documents were microscopically examined to determine what printing process or processes were used to produce the Q1.1 and Q1.2 documents. These examinations revealed that the 2 pages were produced using a toner process. In an effort to associate the two pages as sharing a common print device, microscopic examinations were conducted. These examinations failed to reveal significant trash-mark constellations and/or print anomalies that could be used to make such an determination. It should be noted that the physical appear of the toner along the edges is consistent between Q1.1 and Q1.2.

TABLE 2

WebCode	Methods/Techniques	Observations
	Ruler	All measurements were conducted on the Q1.1 and Q1.2 documents utilizing a Galaxy Gauge ruler. Measurements were taken of the left and right margins for sections 1 through 7 and the sentence(s) both preceding and preceding this section. The unit of measurement used in making these measurements is in points (1/72 of an inch or 0.353mm). Measurements were taken in an effort to identify any inconsistencies within the two questioned pages. These examinations failed to reveal any significant measurement discrepancies both with respect to the internal consistency of the Q1.1 and Q1.2 groupings and with each other; indicating that Q1.1 and Q1.2 were prepared as a multiple page document.
	Overlays	Horizontal line spacing examinations were conducted in an attempt to determine if either of the documents revealed evidence of interlineations, additions, or substitutions. The horizontal line spacing for sections 1 through 6 of Q1.1 (5 lines of text @ 67 pts.) measured 16.75 points. The horizontal line spacing for section 7 of Q1.2 (4 lines of text @ 50 pts.) measured 16.66 points. Therefore, a 16.4 point grid was created using MS word and printed on an acetate with a Ricoh Aficio SP 3510DN printer for overlays. These examinations failed to reveal any evidence of interlineations, additions, or substitutions.
	Other - Type Font Examinations	Examination of the type font used to produce the text on the Q1.1 and Q1.2 was conducted to make sure that there was internal consistency within each respective document. These examinations can likewise assist with identifying interlineations, additions, and substitutions and may be useful in determining if a particular type font was commercially available on the purported date of the questioned document(s). The examinations revealed that the type font(s) used to produce the printed text on Q1.1 and Q1.2 is a san-serif type font. In addition, Q1.1 had multiple sized type fonts ranging from 10 points to 21 points and Q1.2 had type fonts ranging from 10 points to 11 points. It should be noted that the type font sizes and formatting was consistent from Q1.1 to Q1.2 in sections 1 through 7 and the sentence(s) preceding and proceeding those sections (See margins/measurements charts). A classification of the type font could not be accurately determined due to limitations and the lack of certain characters.
	Handwriting Examination	The writing and signature on Q1.2 is original ink, written in black ballpoint pen ink. The manuscript printing and signature revealed evidence of fluency with good line quality, pen pressure variation, hooks, and tapered strokes. Therefore, there is no evidence of distortion commonly associated with traced or simulated forgeries. No known writing of Samantha Kitt was submitted for which to make a comparison.
	Transmitted Light	Transmitted light examinations failed to reveal any watermark(s) in the paper used to produce Q1.1 and Q1.2.
LF98V3	ESDA	Examined Agreement by ESDA. No extraneous impressions found. Impressions of initials from page 1 on page 2 and of entries from page 2 on page 1.
	Other - FONT	Similar font style throughout (although two font sizes used). No evidence of insertion.
	Other - Printing Method	All in the form of black toner.
	Oblique Light	Paper examined for evidence of abrasion. None found.
	Other - Text Alignment	All found to align correctly vertically and horizontally using VSC.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	All signatures in original ink so no evidence that signatures associated with additional paragraphs added by cut and paste.
	Other - Bitmap	Examined document for presence of "bitmap" (yellow dot pattern), and whether there was evidence of two versions of bitmap to show the document had been through a printer twice. None found.
	Other - Test whether paragraph can be inserted	Test document prepared where additional paragraph (final waiver) added by second run through printer. Found that this could be inserted in alignment.
LHBGAD	Video Spectral Comparator (VSC)	The inks on page 1 and 2 reacts the same under UV and IR lights. When page 1 is superimposed on page 2, the letters "SK" from page 1 fits completely on the indentations "SK" found on page 2.
	ESDA	The indentations "SK" are present on page 2 of the document. No additional indentations were found.
LN3FA3	Other - Stereomicroscope and VSC	Traces of erasure were not detected. No differences were observed by the comparative examination of the relevant parts of the document.
	ESDA	Indented writing (each SK monogram) from the first page was found on the second page. Indented writing from the second page was found on the first page.
LR2WLW	Macroscopic Examination	Q1 was prepared using white in color 8.5 x 11 inch paper. The document has been computer-printed, but also bears handwritten entries. The document has been stapled in the upper left corner with one staple. There are no additional staple holes. A crease appears near the staple, which is consistent with the first page being folded over. The font(s) used in Q1 are all sans serif. Font sizes vary in the document, but do not appear to be related to alteration. The font used in the numbered paragraphs is consistent between all paragraphs.
	Microscopic Examination	Electrostatic toner printing (black). No differences noted in type of toner, toner morphology, or toner deposition from page 1 to page 2. Black ballpoint pen ink used for handwritten entries. No evidence of tracing or simulation in handwriting. The handwriting is fluently written. No evidence of erasures was observed. No differences in paper morphology noted from page 1 to page 2. The staple holes are enlarged around the staple. Examined the staple. One prong was raised slightly more than the other; however, there was no clear evidence of the staple being removed and reinserted.
	Indented Writing	Did not observe any indented writing with oblique lighting. Using the ESDA, indentations of all writing on page 2 developed on page 1. Indentations of all writing on page 1 developed on page 2. No other indented handwriting developed. The indented impressions are not consistent with secondary impressions.
	Transmitted Light	No differences in paper morphology observed.
	Ultraviolet Light	No differences observed in the ultraviolet fluorescence between page 1 and page 2. No staining or any evidence of chemical alteration observed. The toner and writing ink did not react to UV.
	Video Spectral Comparator (VSC)	Infrared reflectance (IRR) and infrared luminescence (IRL) examinations conducted. No differences noted between any of the writing ink entries on Q1. The ink drops out during the IRR examination and luminescences during the IRL examination. The toner did not react to the IRR or IRL. No staining or evidence of chemical alteration observed.

TABLE 2

WebCode	Methods/Techniques	Observations
	Micrometer	Both sheets of paper are approximately .004 inches thick.
	Handwriting Examination	The handwriting on Q1 is fluently written. No evidence of tracing or simulation. No evidence of multile authorship.
	Other - Alignment	No misalignment of entries observed. Left margins are consistent between page 1 and page 2.
LWVNWE	Macroscopic/Microscopic Examination	Staple removed for examination; no extra staple holes; no obvious alterations or obliterations; crease on top left of both pages; printed text is toner; handwritten entries are in ballpoint ink.
	Oblique Light	No visible handwriting indentations or paper fiber disturbances.
	ESDA	Results were positive for handwriting indentations on both pages; the indentations from page 1 were on page 2, and the indentations from page 2 were on page 1.
	Overlays	The indentations lifts were overlaid on Q1 to insure all indentations matched the inked entries and no inked entries were missing from the indentations recovered.
	Video Spectral Comparator (VSC)	Paper in both pages shows similar UV reflectance; Transmitted light shows similar paper density; All inked entries transmit with IR at 715nm and higher; All inked entries are positive for IRL at 400-680/735 and higher;
LZV7QZ	ESDA	The indentations of the handwritten entries on page 1 appear on page 2. The indentations of the handwritten entries on page 2 appear on page 1. This indicates that the pages were folded back on one another before completion of the second page.
	Infrared Light	The handwritten entries react the same.
	Microscopic Examination	The staple holes of page 1 and page 2 are consistent with one another. The font on both pages is consistent.
	Ultraviolet Light	Both page 1 and page 2 react the same.
M4Q8CE	ESDA	Indentations of signatures and handwriting were revealed on page 1 and indentations of signatures on page 2 were also revealed. All indentations correspond to the information on the other page.
	Infrared Light	No ink differentiation found
	Ultraviolet Light	No UV features and no alterations or damaged paper fibres found.
	Microscopic Examination	Font and font sizes are the same and show no signs of any difference or changes.
MDHPXM	Transmitted Light	staple hole examination - no evidence of reattachment
	Ultraviolet Light	paper response - consistent between pages
	Microscopic Examination	print process - electrophotographic handwritten entries - original ink
	Video Spectral Comparator (VSC)	infrared exam - no inconsistencies observed
	Ruler	print alignment and spacing - no inconsistencies observed
	ESDA	indentation examination - indentations of handwritten entries on page 1 detected on page 2

TABLE 2

WebCode	Methods/Techniques	Observations
MGVDKR	Infrared Light	Exposure of the writing ink to infrared light provided evidence o indicate that the same type of writing instrument was utilised.
	Other - luminescence	Exposure of the writing in to luminescence light source provided evidence that the same type of writing instrument was utilised.
	Other - side lighting	Exposure to side lighting revealed no evidence of possible mechanical erasures
	Ultraviolet Light	Exposure of the writing ink to ultra violet light revealed no evidence of chemical erasures.
	Other - white light and microscopic examination	There is no evidence of additional staple holes and therefore no page substitution
MTQHUD	Visual Examination	VISUAL EXAMINATION WITH MAGNIFYIN GLASSES OF THE TYPOGRAPHY USED TO PREPARE THE FORM OF THE DOCUMENT BEING STUDIED, EXAMINATION USING MAGNIFYING GLASSES OF THE TEXTS WRITTEN WITH ROLLER-BALL PEN ON THE FORM OF THE DOCUMENT BEING STUDIED. NO ALTERATION FOUND.
	Microscopic Examination	EXAMINATION USING MICROSCOPE OF THE TYPOGRAPHY OF THE TEXTS LOCATED IN THE QUESTIONED DOCUMENT, EXAMINATION USING MICROSCOPE OF THE CROSSING OF PRINTED TEXT WITH LETTER "S" OF THE SIGNATURE AND THE NAME OF MS. SAMNATHA KITT, AS WELL AS ORTHOGRAPHIC SING (COMMA) (!) LOCATED IN THE SECOND PAGE OF THE DOCUMENT BEING STUDIED. NO ALTERATION WAS FOUND.
	Video Spectral Comparator (VSC)	EXAMINATION USING INCANDESCENT LIGHT SOURCE, AND FURTHER APPLICATION OF DIFFERENT FILTERS ON THE PRINTED TEXT OF THE FORM IN THE TWO PAGES OF THE DOCUMENT BEING STUDIED. EXAMINATION USING INFRARED LIGHT SOURCE, AND APLICATION OF DIFERENT FILTERS IN THE TEXTS WRITTEN WITH ROLLER-BALL PEN IN THE FOR OF THE TWO PAGES OF THE DOCUMENT BEING STUDIED. EXAMINATION OF THE DOCUMENT BEING STUDIED USING ULTRAVIOLET LIGHT, LUMINESCENSE AND INFRARED LIGHT SOURCE. NO ALTERATION FOUND.
N6JKCC	ESDA	Indentations caused by writing on page 1 was found on page 2. Indentations caused by writing on page 2 was found on page 1.
	Infrared Light	Inks reacted the same to wavelength of 610nm and disappeared at the same time.
	Ultraviolet Light	Exposure to 365nm showed no signs of erasures or tampering with the paper.
	Overlays	Indentations found on page 2 line up with actual writing on page 1. Indentations found on page 1 line up with actual writing on page 2.
N9E88L	Microscopic Examination	Checked for original ink, print technology, areas of abrasion, possible alterations, checked for speed of writing. Original ink writing is black ball point ink. Print technology is toner. No signs of abrasions indicating erasures. Writing appears natural and consistent. No signs of tracing. Fold area consistent with first page being folded over and behind second page. Staple holes appear consistent with only being stapled one time.
	Macroscopic Examination	Checked margins, spacing. No possible insertions observed. Font style appears consistent. Alignment appears consistent.

TABLE 2

WebCode	Methods/Techniques	Observations
	ESDA	ESDA2, control positive. Indentations from page 1 were observed on page 2; indentations of page 2 were observed on page 1. No other indentations of evidentiary value were observed.
	Infrared Light	VSC6000 for possible ink differentiation. No ink differentiation observed.
	Ultraviolet Light	VSC6000 for paper differences and possible alterations. Papers react similarly as far as brightness. No signs of possible alterations.
	Transmitted Light	Checking for watermarks on papers. No watermarks present.
NCZYG3	Macroscopic/Microscopic Examination	1. Two pages of Q1 sample both produced with toner technology. 2. No differences in binding mark were on two pages of Q1 sample. 3. Use of same fonts and styles on two pages of Q1 sample were showed. 4. There are no findings of alterations on two pages of Q1 sample including uneven margins crowded placement of printed text, irregular spacing and alignment, both vertical and horizontal.
	Video Spectral Comparator (VSC)	1. There are no significant differences of paper fluorescence and writing ink between two pages of Q1 sample. 2. The presences of characteristics indicative of alterations on Q1 sample were not observed, such as area of discoloration, variations in paper characteristics, paper fiber disturbance, overwriting, and characteristics of multiple writing instruments.
	ESDA	The "SK" indentations were visualized on the second page of Q1 sample.
NHQBEK	ESDA	The Q1 items were processed on the ESDA-2 for impression evidence. Visible indented impression of handwriting and initial of Samantha Kitt were develop on both sides of every pages. No other impressions of evidentiary value were detected.
	Video Spectral Comparator (VSC)	1. VSC6000 used for ink comparison on page 1 and 2. Similarities were observed between all pages. 2. The ink enteries of initial and handwriting on both pages have same spectral properties. 3. Ink used for initial and handwriting on page 1 and 2 flouresces under spot flouresces light. 4. Oblique light was used to examine for indented impression. No visible impression were observed with side light examination on both pages of the race waiver. 5. The computer generated ink and handwritten ink enterieson page 1 and page 2 of race waiver had a similar reaction.
	Other - Foram 685-2	1. No differences in Raman Spectra were noted. 2. The computer generated ink and handwritten ink enteries on pages 1 ang page 2 of race waiver had same spectral properties. 3. All printed text on all pages of item Q1 have same spectral properties. All printed text on pages 1 and 2 are using the same ink to print. 4. The inked enters of initial on page 1 have same spectral properties with the ink enteries of handwriting on page 2 race waiver.
NNRPTU	Video Spectral Comparator (VSC)	flood light to check the differences in size, fonts and spacing on the wording of the document.
	Video Spectral Comparator (VSC)	infrared to check how the ink reflects on initials "SK" on the document.
NQKFEL	Microscopic Examination	Black laser printing used, no evidence of disruption to paper fibres or toner.
	Macroscopic Examination	Pages similar size and colour. No evidence of chemical/mechanical erasure.

TABLE 2

WebCode	Methods/Techniques	Observations
	Transmitted Light	No watermarks or disruption to paper fibres observed, pages similar opacity.
	ESDA	Impressions of handwriting on each page superimpose with handwriting on opposite page - evidence of nexus between pages.
	Other - Spectral	No evidence of differences in ink, toner, or paper.
	Other - Measurement grids	Consistent line, word and character spacing and horizontal and vertical alignment observed.
	Other - Font	No differences in font between and within paragraphs observed.
NTMCTA	Visual Examination	Page-size/ no watermark/staple pattern similar (no problems/issues)/no apparent toolmarks on staple crown,. Typographic examination with ruler - sans-serif typeface throughout, measured but not reported here. Similar skew to line with rise in baseline from left to right - no other unaccounted-for misalignments indicating insertion.
	Video Spectral Comparator (VSC)	similar spectral response on entries, UV reaction for pages similar/bright
	ESDA	Indented writing observed on both pages - no anachronisms - no intersections between visible writings and indented writings
	Macroscopic/Microscopic Examination	all printing / background shows similar morphology - no gross differences in toner Ink lines appear to be black ball point pen with HW of similar pressure/gooping/gaps in pen strokes No EP defects of static or periodic nature Where writing intersects toner, the ink line appears to be on top of the toner entries
	Other - Regula Magmouse	Magnetic toner detected on both pages - no indication of insertion via non-magnetic toner
	Other - Faxitron Ultrafocus Radiography	Radiographic density - homogenous appearance on both pages - no indication of insertion via non-magnetic toner
NVBQGJ	Microscopic	Printing processes, evidence/ lack thereof of abrasion/ disturbance, chemical staining, handwriting quality
	Alternate Light Sources: IRL, IRR, U.V., Oblique, transmitted (VSC)	Reaction of ballpoint inks unclear. Varying conditions, potential staining, paper fiber disturbance, watermark, brightness/ lack thereof, staple hole alignment
	Indentation Analysis - ESDA, side-lighting	Determine whether or not handwritten entries were indented onto other parts of Q1
	Alignment grids	Determine if significant misalignments are present that may indicate alteration
NWNKVV	Visual Examination	An "naked eye" approach to the QD do not reveal any lack of homogeneity in the substrate, printing or H&S entries. Paper under diascopic white light offer similar pulp aspect.
	Ultraviolet Light	Under UV radiation, both sort and long wave, the two sheets of paper offer an analogous luminiscence intensity. Although in the second page UV reveals some drops of fluorescence appearance, do not permit to us to suspect on a page substitution.

TABLE 2

WebCode	Methods/Techniques	Observations
	Macroscopic/Microscopic Examination	Detailed examination of printing technique in both pages appoint to the use of the same printing technique (B&W electrophotography). Microscopic examination of the digits and characters do not reveal any difference in typography. Using the 1/4 lambda filter we are be able to confirm an analogous toner fussion system, ergo the same printer in both QD sheets of paper.
	Overlays	Overlaying a transparent line pattern do not reveal any fraudulent entry along the different paragraphs of the Waiver \$ Release of liability declaration.
	Video Spectral Comparator (VSC)	Under different visual and extravisual radiations (UV, VIS, IR) and phisical examination techniques (UV luminiscence, VIS luminiscence, IR absortion & reflection and NIR fluorecence) do not reveal any inconsistency in substrate, printing of handwritten entries.
	Macroscopic Examination	Close view of staple under low magnification do not reveal any remarkable question in the method of application or in the holes that it could indicate to us a fraudulent manipulation.
NYC28R	Video Spectral Comparator (VSC)	Ink used on all pages reacts the same way under spot light.
	Video Spectral Comparator (VSC)	Font type is the same in all paragraphs under flood light.
	ESDA	Indentations of "SK" initialized on first page were observed on the second page.
	Video Spectral Comparator (VSC)	No signs showing that the staple was removed before were observed.
NYDRFV	Microscopic Examination	
	Video Spectral Comparator (VSC)	
NZ7MX	Video Spectral Comparator (VSC)	The use of VSC for posibility of ink differences revealed that one writing instrument was used.
	ESDA	The use of ESDA for possibilities of indentations revealed that the handwritten information on the first page appear on the second page of the document "Q1" and vice versa.
	Microscopic Examination	Microscopic examination on the pages of the documentrevealed no sign of alterations (such as inconsistances and tremor).
P2UFBR	Video Spectral Comparator (VSC)	The ink of the handwritten "SK" react the same on the waiver form. The printed ink react the same on the waiver form.
	Video Spectral Comparator (VSC)	The words " acknowledge" and "accept" on PAR 5 were superimposed with the word " acknowledge" on PAR 3 and the word "accept" on PAR 7.They match too each other
P2V9C7	Visual Examination	Page size, page margins, line spaces and printed font are similar between page1 and page2 of Q1.Printing baselines on each page parallel to each other .
	Microscopic Examination	Micro characteristics of printed and handwritten contents on page1 match with the ones on page2.
	Video Spectral Comparator (VSC)	No differences in spectral characteristics of paper and ink between page1 and page2.

TABLE 2

WebCode	Methods/Techniques	Observations
	ESDA	Indented writings from each page were found on the other page.
	Handwriting Examination	The characteristics of handwritten content on page1 are similar to that on page2.
	Other - Raman spectroscopy	No differences in Raman spectral characteristics of paper, ink and toner between page1 and page2.
P42TZ8	Video Spectral Comparator (VSC)	no anomalies (e.g: alteration of the paper surface) detected. the contents was printed using same type of font
	ESDA	indented writing were found on both pages of waiver form
	Microscopic Examination	the contents of the waiver form were printed by the electrostatic printing process (toner)
P9PMM7	ESDA	There are indentations on both pages of the initials "SK", the names, date, place,email and phone number.
	Other	The spacing between the words and the paragraphs are same. No indication of alteration observed.
PNBQJ3	Magnification	Initial examination of a machine printed document (black laser toner) with handwriting executed with a black ball point ink. Document consisted of 2 pages. Document stapled in the upper left corner. No additional staple holes that were unaccounted for. The document was crease along the staple. The front page was crease upward, and the second page was creased backward. Both pages of the document had paper that was of similar stock.
	Microscopic Examination	Examination with a microscope and a Proscope digital microscope did not show signs of alteration of the laser printed text on either page of the document. Particular attention was paid to item #5 that mentioned "exposure to native poisonous plants." In addition there were no signs to indicate the initials and handwriting of Samantha Kitt were altered.
	Overlays	Grids were utilized to view misalignment of the type fonts on the document. There were no indications of such an issue.
PNR3X2	Video Spectral Comparator (VSC)	By using this equipment different areas of the document were extended to establish possible traces of alterations that were not found in the document. Comparisons were made between content of the same nature as well as inter-literal, inter-verbal and inter-linear spacing corresponding to each other. A differential analysis of inks was also carried out in order to establish whether any areas of the printed form were any different from each other, from which observation it was established that all the content has a similar reaction when exposed to different types of light and wavelengths
	Visual Examination	In order to establish analogies or not between writings made by different types of letters.
	Microscopic Examination	In order to corroborate or not the previously made appreciations of direct way.
PQUTJV	ESDA	Examination of the "A4 size" pages for all indented writing to decipher the writing with ESDA on both pages. Indentations shwowing letters e.g "SK", "skitt@aol.com were deciphered.
	Visual Examination	The staple holes are consistent with a document that was stapled only once.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	The pages were examined for ink differences and on both pages the ink was found to be consistent. The paper of the two pages in question were also examined for differences and no differences could be observed.
Q2DGYF	Other - Guides documents	Although the document presents printed texts in different sizes, there is no authentic standard format for comparing font size and class. On the other hand, in our laboratory procedures, we do not perform technical analysis based on the variable "time" or "antiquity", so I do not issue a concept about it. In addition, in the [Country] courts, judges do not authorize the assignment of parts of a document to establish seniority between their forms and manuscripts because it is considered that the evidence must remain unaltered during forensic laboratory analyzes.
Q36KLV	ESDA Infrared Light Microscopic Examination	Indentations from page 1 were found in the same areas on page 2, as well as indentations from page 2 were found in the same areas on page 1 Infrared light shows no different inks used when looked at the letters "SK" all reacted the same The font examination shows no different fonts that were used when looking at the words "poisonous plants" to the rest of the words in paragraph 5
Q4YL8D	Video Spectral Comparator (VSC) Microscopic Examination	Nothing detected. Nothing detected.
Q7K8ZZ	Visual Examination ESDA Video Spectral Comparator (VSC) Handwriting Examination Ruler Microscopic Examination	
QF7DTX	Other - Video Spectral Comparator (VSC) -Flood Light Other - Video Spectral Comparator (VSC) -Flood Light Other - Video Spectral Comparator (VSC) -Flood Light filters Other - ESDA - Indentation	The same font is used on both pages of the questioned document(Q1) Staple holes of both pages of the questioned document match physically There is no variation of ink when the questioned document is exposed to the same light source , therefore One writing instrument was used The second page of the questioned document has indentations of the letters "SK" which are written on the first page of the questioned document
QQCBK9	Macroscopic/Microscopic Examination Ultraviolet Light	I reviewed the typed writing as well as the written writing. The typed writing appeared to be the same type of print process. No signs of obliterated material.

TABLE 2

WebCode	Methods/Techniques	Observations
	Ruler	margins on both pages are the same size; font inside paragraphs same size throughout document.
QUTJ7L	Macroscopic Exam	Overall examination of document including formatting, staple placement
	Microscopic Exam	Machine printing exam all entries toner, handwriting, instrument exam all entries black ballpoint, line intersection exam - bullets 1, 2 & 3 on p.1 & signature/race location p.2 = toner printed before handwriting written.
	Indented writing	Side Light Exam: indented impressions on pages 1 & 2. Electrostatic detection apparatus 2: sourced indented impress. on pages 1 & 2; impressions on p.1 sourced to p.2; impression on page 2 sourced to p.1.
	Ink exam - VSC 6000	No differences in optical properties/color of ink used in handwritten entries on pages 1 & 2. No differences in optical properties of toner used in machine printed entries on pages 1 & 2.
	Paper Exam - VSC 6000, ruler, Automatic Micrometer	No differences in optical properties, size, thickness color of paper used in pages 1 & 2.
	Formatting	No differences in bullet or font formatting on pages 1 and 2.
QWHPQJ	Macroscopic/Microscopic comparison and examination	Physical comparison of questioned documents further labeled as Q1.1 and Q1.2, front and back.
	Oblique fiber optic - side lighting	Used on both front and back of Q1.1 and Q1.2. Latent writing impressions possibly observed on Q1.1 front/back and Q1.2 front/back. Writing on Q1.1 and Q1.2 back could be writing from reverse side of document.
	Electrostatic detection apparatus (ESDA)	ESDA was conducted on Q1.1 and Q1.2 front and back. Latent writing impressions developed on Q1.1 front/back and Q1.2 front/back. The writing from Q1.2 front appears to be on Q1.1 front. The writing from Q1.1 front appears to be on Q1.2 front.
	VSC 6000 (video spectral comparator)	Various light sources and filters used. The ESDA lifts were used as an overlay on the original questioned documents. ESDA lift for Q1.1 front overlaid on Q1.2 front. ESDA lift for Q1.2 front overlaid on Q1.1 front.
QWY4UM	Macroscopic/Microscopic Examination	No indications of alterations. No alignment issues. All print by toner. No differences in morphology
	ESDA	Indented writing on front of page 1 from the writing on page 2. Indented writing on front of page 2 from the writing on page 1
	Video Spectral Comparator (VSC)	no indications of alterations by UV/VIS/IR reflectance and fluorescence.
	Other - Magnetic ink detector	All toner material contains magnetic material (iron)
R2PVHA	ESDA	Indentations of handwritten entries on page 1 occur on page 2. Indentations of handwritten entries on page 2 occur on page 1. No irregularities were observed.
	Infrared Light	All of the handwritten entries react similarly under infrared. The The same is true for the printed text.
	Microscopic Examination	There is no evidence of paper fibre disturbance. The staple holes correspond with one another, indicative of the fact that neither page has been substituted. There are no differences in font, spacing or layout on the document.

TABLE 2

WebCode	Methods/Techniques	Observations
	Ultraviolet Light	The document displays no evidence of mechanical or chemical erasure.
R8VANK	Video Spectral Comparator (VSC) Other - Stereomacroscopic Other - FTIR	Both sheets have the same behavior under different lights and wavelengths No differences were found in the toner of both sheets
R8XYQW	Other - Visual/Oblique/Side Lighting, Microscopic Examination Other - Digital Imaging ESDA Video Spectral Comparator (VSC)	Preliminary assessment of handwriting-black ballpoint pen, medium pressure and speed. Negative results for visual indented impressions. Images of original document. Multiple impressions were found on page 1 of document-front and back, page 2 of document-front and back. No differences in the inks on each page of document.
RCRVD3	Visual Examination Ultraviolet Light ESDA Microscopic Examination Video Spectral Comparator (VSC) Transmitted Light	Visual examination using rulers concluded that the alignment and spacing is consistent throughout the document. UV examination revealed no UV differences between the paper or inks present. ESDA examination showed Indented Writing present from Page 1 on Page 2 and from Page 2 on Page 1. Microscopic examination determined the printing process of the document as toner and it was consistent throughout. Also noted the presence of one set of staple holes. VSC analysis did not detect and alterations present. No watermarks were detected.
RKK7MX	Visual Examination Macroscopic Examination Microscopic Examination Video Spectral Comparator (VSC) ESDA Other - Measurements	General appearance (dimensions and colour) of the papers in "Q1" was observed to have no significant differences. Similar printed font was observed in "Q1" i) Printing: One printing method (toner) was observed in "Q1". ii) Handwriting: The handwritten entries were observed to be written using ball-point pen. i) Paper: The papers in "Q1" were observed to have no significant differences in their optical properties. ii) Printing: The ink of the printing in "Q1" were observed to have no significant differences in their optical properties. iii) Handwriting: The ink from the handwritten entries were observed to have no significant differences in their optical properties. Handwriting indentations were lifted from page 1 and page 2 of "Q1". The lifted handwriting of page 1 was identical to the handwriting on page 2 and the lifted handwriting of page 2 was identical to the handwriting on page 1. i) Paper: The measurements of the papers in "Q1" were found to have no significant differences. ii) Printing: The alignment of the printed texts in "Q1" were found to have no significant differences.

TABLE 2

WebCode	Methods/Techniques	Observations
RKL2BA	ESDA	Indentations on page 1 match page 2 and vice versa.
	Infrared Light	No ink differentiation when documents were exposed to specialised light sources.
	Indented Writing	Fonts and font sizes do not differ in the questioned area "exposure to native poisonous plants" on the document.
RKMXXK	Macroscopic/Microscopic Examination	The text on both pages is printed with toner via an electrophotographic (laser) print process, while the handwritten entries on both pages, including the signature on page 2, are written in black ballpoint pen ink. The distribution and amount of micro toner spatter, including a concentration under horizontal portions of printed elements, is similar between both pages.
	Visual Examination	The two pages were joined together at the top left corner via a staple (removed for ease of examination), and each has a fold in this area, consistent with page 1 being folded back neatly (aligned) underneath page 2. The format and layout of the two pages of Q1 are similar, with left and right margins, justification, font size (smaller for the numbered sections, larger for the paragraphs before and after), and line spacing the same from page 1 to page 2.
	Transmitted Light	The paper stock of the two pages is of a similar colour and opacity.
	Ultraviolet Light	The paper stock of the two pages is of a similar UV brightness.
	Other - Spectral examination	Ink examination was conducted using light and filters of various wavelengths. The inks on the two pages displayed similar spectral properties, and no dissimilarities were observed at the level of analysis undertaken.
	ESDA	Both pages, front and back, of Q1 were examined using the ESDA2. Indented impressions were detected on both pages, with handwritten entries on page 1 detected on page 2, and vice versa. These overlay the written entries when the two pages are aligned exactly one on top of the other. This alignment would occur if the pages were together per the staple as received, and folded per the fold lines observed.
	Overlays	Electronic overlays (scanned and overlaid in Photoshop) of selected common words ('to' and 'and') from various positions on the two pages of Q1 showed good correspondence.
RMQQKH	Microscopic Examination	Examination of the preprinted text and holes after staple. The preprinted text was found to be printed with laser printer and had a homogeneous appearance. The holes after the staple matched well on both sheets of paper, no signs were found indicating that sheets were replaced.
	Infrared Light	To examine the optical properties of the ink of the handwriting. No differences could be detected, the ink had a homogeneous appearance
	Indented Writing	To determine if there was any indented writing on the waiver. Matching indented writing from page 1 was found on page 2, and matching indented writing from page 2 was found on page 1. This shows that page 1 was folded behind page 2 when completing and signing.
RRXEXK	Visual Examination	Examinations with oblique light, sunlight, transmitted light, to search for fiber disturbances, impressions, folds, or color differences. Sheet sizes measured. Also search for inconsistencies in the fonts used. No inconsistencies found.

TABLE 2

WebCode	Methods/Techniques	Observations
	Microscopic Examination	Examinations with oblique light to determine writing ink type, machine printing process, search for fiber disturbances, impressions, or color differences. Examine staple holes. Form is toner, and handwritten material is black ball point pen ink. No inconsistencies found. Single staple, and no additional holes. Fonts are alike from page to page, and within a page.
	Ultraviolet Light	Exam for fluorescent differences in the two sheets of paper, and to look for any accidental markings which fluoresce. No inconsistencies found. No accidental marks found.
	Video Spectral Comparator (VSC)	Examine the writing ink for similarities or differences in fluorescence, or in visibility behavior when viewed with infrared light. No inconsistencies found.
	Overlays	Search for inconsistencies in margins, line spacing, number placement, fonts, or justifications. No inconsistencies found.
	ESDA	Search for indented writings. Page one written while on top of page two, and page two written while on top of page one. It appears that it was written on a hard, smooth surface.
RVYLAW	Visual Examination	Corners folded outwards.
	Microscopic Examination	The text on both sheets is printed with a laser printer (black toner). Handwritten text. No damage of staple or paper around.
	Video Spectral Comparator (VSC)	Overlapping - no result (the same font, line spacing, etc) on both sheets. Paper check (transmitted and side light)- no differences and damage in paper found). IR luminiscence - no differences in luminiscence of ink on both sheets. Side and transmitted light - no damage of staple or paper around.
	Ultraviolet Light	No difference in paper fluorescence between sheets 1 and 2.
	Indented Writing	Oblique light - no visible indented writing.
	ESDA	On both sheets there is indented writing from another sheet.
RWEMEJ	Visual Examination	There were no additional staple holes observed, indicating that the pages were not un-stapled and/or re-stapled. The crease in both pages also aligns and no other creases are observed.
	ESDA	The impressions from the first page were indented into the second page, as were the impressions from the second page onto the first page.
	Microscopic Examination	This examiner saw no evidence indicating tracing or simulation of the initials, or writing of the questioned document, but had no standards for comparison. Both documents were completed using toner.
	Video Spectral Comparator (VSC)	Nothing indicating alterations or deception was observed. The inks that were observed behaved in a similar manner and were spectrally similar.
	Overlays	Overlays in red and green colors were made in order to illustrate alignment as well as the conformance of the initials and writings.

TABLE 2

WebCode	Methods/Techniques	Observations
RYLZX7	Other - A) ALTERATION ANALYSIS METHODOLOGY	It allows us to determine if a document was or not altered. Document analysis without optic devices (hand loupe, magnifying glass): It could be observed that the printed writing has the same design, margins, line-spacing, font and the text is not justified. Document analysis with optic devices (VSC6000 Foster + Freeman) With this device, it was clearly seen that the printing method is laser. Document analysis with different light sources (VSC6000 Foster + Freeman): When it was subjected to infrared light (695 nm), it showed transparency and to fluorescent infrared (695 nm), it showed luminescence, within the image. Therefore, we can conclude that the document was created in one moment. Dates cannot be determined.
	ESDA	It allows us to detect if there is any traced writing or lines by means of printed indentations in a document. It generates a natural size positive developing, with no damage or contamination of the exhibits, by an Electrostatic Detection Device. ESDA2 Equipment: The document was placed in the humidifier from 1 up to 2 minutes, to reach the appropriate humidity of 60%. Then it was placed on the platen, after the removal of its plastic cover. The vacuum pump is turned on and placed in the control chart. The document is covered with a charging film (plastic film) and it is cut with the film knife, to separate it from the film roll. The high-tension corona bottom is lighted in blue. The document is waved with high-tension corona wire to charge it electrostatically, until the light stops blinking. Then, the electrostatic image is created and now the cascade method to develop indentations can be carried out. Therefore, the platen needs to be tilted in a position of approx. 45° and the toner beads can be poured over the surface, with the cascade method. Once it is developed, a fixing film (adhesive lift) is carefully placed. Finally, the document is carefully separated from the charging film and fixing film. As a result, several latent writings were developed, in every page of the document, without altering its design or competition. PAGE 1, the following latent writing was developed: "(A) SK, (B) Samantha Kitt, (C) 4/1/17, (D) Signature, (E) Richmond VA, (F) skitt@aol.com, (G) 202-555-6994". They all match with the writing printed in page 2. PAGE 2, as a result the letters "SK" were developed in every bracketed item. They all match with the printed writing in page 1. All of them were fully recognized by the participant.
T64VCF	Microscopic	Overall examination of documents did not disclose any disturbances. Staple marks of only one staple with no indication of re-stapling. Fold mark on both pages consistent with page 1 folded under page 2. Document produced with toner and filled in with black ball point ink.
	ESDA	Handwritten notations on the front page found as indented impressions and front of second page. Notations on second page found on the front of first page.
	UV	Both pages flourescen similarly.
T7WN8Y	Oblique Light	Indented writing.
	Microscopic Examination	Initial Assessment, microscopic comparison, printing process, ink, paper.
	ESDA	Indented writing.
	Visual Examination	Digimatic Caliper ruler for paper thickness.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	Ink examinations, paper examinations, printing process.
TAZG74	Ink Examination:- (i) Visual	No differences were observed on Exhibit Q1.
	Ink Examination:- (ii) Ultraviolet	No differences were observed on Exhibit Q1.
	Ink Examination:- (iii) Infrared	No differences were observed on Exhibit Q1.
	Macroscopic/Microscopic Examination	No differences were observed in font size and font design on Exhibit Q1.
	Indented writing:- Electrostatic	Page 2 handwriting was observed as indentations on Page 1. Page 1 initials were observed as indentations on Page 2.
	Handwriting Comparison	No differences in letter formation were observed in the initials on pages 1 and 2 of Exhibit Q1. None of the initials on page 1 were exact overlays on the initial on page 2 of Exhibit Q1.
TCK7QG	Macroscopic/Microscopic Examination	The documents were visually examined, including with magnification. No unusual characteristics were noted with the spacing or alignment of the printing or ink entries. A single staple secured the pages together and the folding characteristic was present.
	ESDA	The documents were examined for indentations. Page 1 impressions were impressed upon page 2. Page 2 impressions were impressed on Page 1. All writing impressions were present in the expected locations.
	Video Spectral Comparator (VSC)	The VSC was used to examine the inks and paper. No discernible differences were observed throughout IRL, IRR, or the UV exams.
TCMVUD	Overlays	Font, kerning, and leading are consistent between both pages of the waiver which is consistent with a single drafting.
	Microscopic Examination	All signature and initials are wet ink executions ruling out an addition of a paragraph that was added after the execution by participant.
	Handwriting Examination	All handwritten executions are consistent with a single author.
	Visual Examination	The Q1 document is absent of any trash marks, obliterations, or computer generated characteristics due to technological alteration.
TXJUW3	Microscopic comparisons	k1 and k2 were printed by use black laser jet technique, the handwriting and signatures were made black ballpoint pen inks
	Microscopic comparisons, VSC 6000 - UV, IR, optical filters	k1 and k2 papers have a little different optical properties (difference between intensity of activity UV and IR light); k1 and k2 toners do not have different optical properties; k1 and k2 ballpoint pen inks do not have different optical properties
	Microscopic comparisons, VSC 6000 - image comparison in the MIX mode VSC 6000	k1 and k2 have the same size of papers, topography and the typeface of letters
TY2JH4	Visual Examination	At visual examination all document it is observed similar, without any alteration, and ink appear to be from the same origin.

TABLE 2

WebCode	Methods/Techniques	Observations
	ESDA	When to use ESDA I observed in 1st page all indented writing from the 2nd page. This it happens because when the document is stapled and folded to signed and/or writing de personal information it is displayed in the first page. Additional I observed in the 2nd page all indented writing from the 1st page (in same area).
	Microscopic Examination	All fiber are similar, don't present signs of erasure or adding writing.
	Video Spectral Comparator (VSC)	I used with the help of VSC ultraviolet light with different filter in all documents and don't revealed any change. Additional transmitted light for both paper side. The optical analysis of the ink is similar in range.
UE86J6	Video Spectral Comparator (VSC)	Infrared, Ultraviolet, Incident, oblique
	ESDA	Electrostatics - "Tonor whitth Pearls"
UTNZWG	Indented Writing	Oblique (side lighting) lighting was used to view possible latent indentations on the document. No indentations were visible via side lighting.
	ESDA	Indentations from the writing on page 1 were found on page 2 and indentations from the writing on page 2 were found on Page 1. All of the indentations agreed with the writing. No unexplainable indentations were revealed.
	Microscopic Examination	And visual examination of the staple and staple holes. No additional staple holes were discovered on either page of Q1.
	Transmitted Light	No water marks were discovered on either page of Q1
	Video Spectral Comparator (VSC)	The writing inks on Q1 reacted similarly during all non-destructive ink examinations.
	Other - Digital Grid 8.4 points	A digital grid, created with Adobe Photoshop, shows the questionable paragraph (5) is in alignment with paragraphs 1,2,3,4, and 6.
	Ruler	E-Ruler was used to show the font size was the same in the numbered paragraphs (1-7) including paragraph 5 which includes the information in question.
	Microscopic Examination	A handheld magnifier was used to examine the font style. The font style is the same throughout the seven numbered paragraphs.
V42KUH	Visual Examination	Paper tears (-), Impressios (-)
	Oblique Light	Impressions (-)
	Microscopic Examination	Ink Examination, Stroke Examination
	Video Spectral Comparator (VSC)	Stroke Examination, Ink Examination, paragraph alignment
V79Z39	Visual Examination	1).The paper of both pages had similar size and colour. 2. There were two aligned staple holes on each page and the fold lines on both pages were aligned. 3). No physical erasures were observed.
	ESDA	1) Indented impressions of handwriting on page 2 were observed on page 1. 2) Indented impressions of handwriting on page 1 were observed on page 2.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	1). Under transmission light, no watermarks were observed on both pages. 2). The page layout of the paragraph 5 including the even left margin and uneven right margin, the font type and size; and the letter, word and line spacings were significantly similar to those of the other paragraphs. 3). Under infrared light, all the signatures and handwriting became invisible at 778nm.
	Microscopic Examination	1). All the printed texts including those in paragraph 5 were made up of tiny black dots, and tiny black dots were also distributed throughout the paper. 2). All the ink lines of the signatures and handwriting are black in colour, bearing gooping. No fiber diffusion were observed.
V8HATK	Macroscopic/Microscopic Examination	Q1 – Page 1,2 – both measured ~8 ½ inches by 11 inches; there was one staple present attaching Page 1 to Page 2. No other staples holes were present on either page. The fold placement and length in the upper left corner on Page 1 and Page 2 in Item Q1 was also similar. Page 1,2 printed with Toner technology.
	Video Spectral Comparator (VSC)	Q1 – Page 1,2 examined with non-destructive methods – no differences observed.
	Handwriting Examination	Q1 – Page 1,2 – naturally written, suitable for comparison if knowns submitted.
	Indented Writing	Indented impressions of the writing on Page 2 in Item Q1 developed on lift Q1A1, which was from the front of Page 1 in Item Q1. Indented impressions of the writing on Page 1 in Item Q1 developed on lift Q1A3, which was from the front of Page 2 in Item Q1. This means that Page 1 and Page 2 in Item Q1 were in contact during the writing process of both pages.
	Other - Paper Examination	Q1 – Page 1,2 – consistent in class characteristics, such as the color; physical dimensions; the lack of a watermark; the presence of optical brightener; and similar paper fiber distribution. However, there were no individualizing characteristics present.
	Other - Font Classification	Q1 – Page 1,2 The font on the two-page document in Item Q1 most closely corresponded to the font standard for Calibri, a san serif font, but may also be similar to other fonts
V9TTXN	Video Spectral Comparator (VSC)	Under magnification, IR(Infrared) and UV lights the ink on "SK" initials and handwriting react the same on both pages.
	Video Spectral Comparator (VSC)	Under magnification and Flood light after superimposed page one paragraphs, the font and size is the same. The staple was not removed as well.
	ESDA	The initials "SK" on the first page are indented on page two

TABLE 2

WebCode	Methods/Techniques	Observations
VAA6FU	Microscopic Examination Macroscopic Examination Video Spectral Comparator (VSC) ESDA	(a)Microscopic/macrosopic/ VSC (Ultraviolet). (a)Paper comparison pages 1 & 2 - no differences found. (b)Microscopic. (b)Printing process of pages 1 & 2 - no differences found. (c)Microscopic/macrosopic. (c) font/font sizes of pages 1 & 2 - no differences found. (d) Microscopic. (d) handwriting style and fluency on pages 1 & 2 - significantly similar. (e) microscopic. (e) staple examination - no disturbance of the staple or evidence of re-stapling. (f) microscopic/VSC (infrared, visible to IR chemiluminescence). (f) pen ink comparison pages 1 & 2 - no differences found. (g)microscopic/ macrosopic. (g)special attention directed to section 5 - no alterations found. (h)ESDA. (h)indentations originating from page 1 were found on page 2, indentations originating from page 2 were found on page 1 - therefore the pages were written out one on top of the other
VAULWV	Macroscopic/Microscopic Examination ESDA Video Spectral Comparator (VSC) Handwriting Examination	Machine printing = black toner (both pages). Black ballpoint pen used for initials, hand printing, and signature. Typestyle consistent throughout document. Formatting of document consistent throughout both pages (includes margin, paragraph measurements). Only 1 set of staple holes in each page of Q1 (corresponding to the staple binding the pages together when received). Folds in upper left corner of each page Indented writing on page 1 of Q1 attributed to page 2 of Q1; indented writing on page 2 of Q1 attributed to page 1 of Q1 Optical characteristics of ink(s), machine printing, and paper similar between pages 1 and 2 of Q1 While quantity limited for comparison, internal consistency between 'SK' letter forms observed between pages 1 and 2 of Q1
VBBG7G	Visual Examination Microscopic Examination Oblique Light ESDA	A single staple in the upper left corner of the race waiver was removed showing a single set of staple holes on page 1 and page 2. A fold above the staple on page 1 is very similar in position to a fold to a fold on page 2. A crease towards the upper right corner of page 1 is similar in shape and position to a fold on page 2. The font used in 1) - 6) on page 1 is the of the same typestyle and size as the font used in 7) on page 2. Handwriting on page 1 and 2 was prepared with a blackish ball point ink. Machine printed text on page 1 and 2 was printed with a toner process. No paper fiber disturbances indicative of mechanical erasure or other significant findings were observed. Indented writings were detected on page 1 and page 2 of the race waiver through ESDA processing. The indented writings detected on page 1 correspond with original handwriting on pages 2. The indented writings detected on page 2 correspond with original handwriting on page 1. This indicates that page 1 and page 2 were in direct or indirect contact when the original handwriting was executed.

TABLE 2

WebCode	Methods/Techniques	Observations
	Overlays	Digital imaging software was used to prepare overlays of the indented writings recovered through ESDA lifts over the original handwriting of page 1 and 2 of the race waiver. This assisted in determining that the indented writings correspond with original writing from page 1 and 2 of the race waiver. This overlay technique was also used to determine that the font size and line spacing of 1) to 6) on page 1 and 7) on page 2 are the same. Digital imaging software was also used to prepare a grid overlay on page 1 of the race waiver to assess any misalignment of printed text. No misalignment was observed.
	Video Spectral Comparator (VSC)	VSC examinations of the handwritten entries of the race waiver could not differentiate the inks used on page 1 and 2. The inks all reacted similarly in regards to infrared luminescence and reflected infrared characteristics. Examination with the VSC UV light source did not result in any significant observations of the handwritten ink entries, printed entries, or paper of page 1 and 2 of the race waiver. No evidence of chemical alteration was observed.
	Transmitted Light	Transmitted light was used to examine page 1 and 2 of the race waiver form. Paper texture and patterns appear very similar for page 1 and page 2. No significant features were observed such as water marks or evidence of alteration.
	Handwriting Examination	The writings from page 1 and 2 were analyzed for the presence of individualizing characteristics, combinations of characteristics, and other potentially significant features that would be indicative of common authorship or non-authorship. No conclusion could be reached due to the limited amount of handwriting on page 1 as well as the limited amount of comparable handwriting between pages 1 and 2.
VE46UP	Microscopic Examination	There is a uniprocidence between the typographic text printed on both pages of the questioned document, by verifying the following characteristics: interlinearity, words and letters spacing, major and minuscule heights, margins, letters size and alignments.
	Other - Microspectrophotometry	
VLM3P4	Preliminary examination of the document	In this stage it is verified that the document subject to study if they meet the requirements to be able to carry out the study, otherwise the analysis is not performed.
	Optical examination of the document	The document is viewed at a glance to see if grooves are detected. This step consists in detecting furrows with the naked eye in the document.
	Examination with portable equipment	The expert is aided by some instruments such as magnifying glasses, threads or light sources. This step is to detect furrows with laptop in the document.
	Examination with specialized equipment	Analysis with different light sources (VCS 40), ESDA (Electrostatic detection apparatus) At this stage grooves will be detected in the paper that could reveal some manuscript which will be described in such a way that they can be identified at the time of reading the text.
VTLUTR	Hand magnifier	Nothing notable. Font - consistent throughout 1st pg & 1st paragraph top 2nd pg.
	Typewriter plates	Check margins, spacing & alignment of paragraphs - OK
	Zarbeco - Miscospe - with filters	Visible, IR & UV - Ink for initials - no distinction

TABLE 2

WebCode	Methods/Techniques	Observations
	Oblique & Back lighting	No indentations, no alterations or obliterations noted
	Handwriting exam on initials	Nothing notable
	Staple holes	One set
	Paper	Nothing notable between pages
W2ULXF	Visual Examination	Item Q1 consist of 2 sheets of white paper (approximately 8 1/2" x 11") starting with the words of "The 2017 Sun & Fun 5K", page 1 has 6 paragraphs of concerns with the initials "SK" following each, page 2 has 1 paragraph of concern with the initials "SK", along with information on a "Samantha Kitt" and the date of 4/1/17.
	Oblique Light	Side lighting was conducted on item Q1 (2 pages) with negative results of indented writing.
	ESDA	No significant indentations were observed on item Q1 (2 pages), showing negative results.
	Other - Leica M60	A stereo microscope examination showed no differences, variations or inconsistencies on item Q1 (2 pages).
	Other - VSC 6000/HS	Item Q1 (2 pages) were examined by using various frequencies such as flood, spot, transparent, fluorescence, UV, IR & side lighting. All conclusions appear to consistent with negative results for differences or signs of alterations.
	Other - Elite & Pica Film Grid Templates	Both the Elite & Pica film grid templates were used for spacing, margins, size, lining & font relationships. All appeared to be consistent on item Q1 (2 pages).
WGNDGV	Visual Examination	Included in the visual examination was the observation of a staple with only the current staple holes, a fold in the upper left corner of both pages of the document, and an internal comparison of the font and formatting of the document between portions and pages.
	ESDA	Indented writing was located on both pages of the document utilizing the ESDA. Noted was that the indented writing of page 2 on page 1 overlapped the specific paragraph in question (regarding poisonous plants), indicating that the first page was substituted from the second page.
	Microscopic Examination	The document was reviewed for any paper fiber disturbances and to determine the type of printing process and writing instrument throughout the document.
	Video Spectral Comparator (VSC)	The VSC was used to determine if there were any different optical properties of the paper, toner and ink observed on the document. No optical inconsistencies in the document were observed.
	Transmitted Light	Transmitted light was used to determine if the pages could remain stapled and produce the indented writing observed (ESDA lifts) and if there were any watermarks present.
WPHFUD	Other - Naked eye	No misalignments were detected between paragraph 5 and the other paragraphs on page 1. No misalignments were detected in between paragraph 5.
	Visual Examination	No optical differences, concerning the paper and the ink from the handwritten entries were detected between page 1 and page 2 of the questioned waiver.

TABLE 2

WebCode	Methods/Techniques	Observations
	Other - Keyence Macroscope	No misalignments were detected between paragraph 5 and the other paragraphs on page 1. No misalignments were detected in between paragraph 5. No evidence of staple replacement has been detected.
	ESDA	The indentations of the handwritten "SK" from page 1 were found on page 2 and the indentations of all the handwritten entries from page 2 were found on page 1. No misalignments were detected between the indentations and the respective handwritten entries.
X32HHB	Visual Examination	Using visual examination no modification were abserved.
	Microscopic Examination	Olso by using of microscope no modification were observed.
	Video Spectral Comparator (VSC)	By using VSC-6000 with IK light and UV no modificaton obsarved. There were found any altrnation in documents.
	ESDA	By using ESDA, there were not detected any indeted impressions.
X32KEE	ESDA	Page 1 showed indented writing created when page 2 was filled out while atop page 1. Page 2 showed indented writing created when page 1 was filled out while atop page 2.
XDXPEU	Video Spectral Comparators "Docucenter NIRVIS2 & VSC-2000 HR"	Infrared light sources to visualize possible alterations. Observation of the inks responses on the handwriting part. Oblique light. UV light.
	Stereoscopic Microscope "Leica S6D"	To determine the system of impression: Analysis of the handwriting part. Analysis of possible manipulations or alterations. Sizes of sources and tabulations.
XEGDXA	Macroscopic/Microscopic Examination	No differences noted between HW ink entries of internally for pages 1 and 2 regarding appearance of the black ballpoint pen inks used, regarding color and relative brightness; inks appeared similar between the two pages. Observed monochromatic (black) toner printing created both pages of Q. A single staple affixed pages 1 and 2. Examination revealed no indication prior stapling had occurred. nd Folds at the top of pages 1 and 2 were configured, would support page 1 writings were made while Page one was above page two; then page one was folded beneath page two while handwritten entries were made on page 2.
	ESDA	Page 1 indentations present were consistent with HW entries on page 2; Page 2 indentations were consistent with the HW entries on page 1. Side-lighting exams for indentations did not reveal any decipherable indentations.
	Other - grids	Grid assessment revealed no vertical or horizontal misalignments among the printed text entries within page 1 or within page 2.
	Infrared Light	VideoSpectral UV, IR and IRL examinations of the handwritten entry inks revealed no differences in responses of ink entries internally on page 1 or internally on page 2. Photoshop CS5 Lab color mode (LCM) conversion assessment of HW inks found no differences among inks internally on page 1, and internally on page 2.
XG7KH7	Visual Examination	The paper contained one staple and a fold in the upper right corner. Neither page contained folds or other indications of being handled differently.
	ESDA	The initials from the first page all indented into the second page at the corresponding places. No indications of alterations.

TABLE 2

WebCode	Methods/Techniques	Observations
	Video Spectral Comparator (VSC)	UV source - both pages showed a similar fluorescence. The inks responded the same on the monitor with each gradation on the VSC 40/HD.
	Microscopic Examination	a microscopic examination did not show any evidence of erasures or other factors that would indicate alterations.
	Handwriting Examination	The handwriting and initials were all written by the same person using the same or similar pen.
	Infrared Light	See response in Video Spectral Comparator
	Thickness	The papers felt like they were a similar weight.
	Transmitted Light	Transmitted light showed that opacity of the paper was similar.
	Oblique Light	Oblique lighting did not produce any evidence that the pages were handled differently.
XHC7PJ	Microscopic Examination	There is no evidence of any additional stapler holes, and subsequently no evidence of entire page substitution.
	Ultraviolet Light	Exposure of the writing ink to Ultra Violet (UV) light revealed no evidence of any chemical erasure.
	Infrared Light	Exposure of the writing ink to specialised light sources such as infra-red similar reactions which provides evidences to support the proposition that the same type of writing instrument was used.
	Ruler	Exposure of the writing ink to specialised light sources such as spot light fluorescence revealed similar reactions which provides evidences to support the proposition that the same type of writing instrument was used.
	Video Spectral Comparator (VSC)	Measurements of the line spacing, paragraph spacing and font revealed no evidence of any paragraph and/or sentence alteration by means addition.
XQAUPW	Visual Examination	The visual examination did not exhibit any evidence of any misalignment either vertically or horizontally.
	Video Spectral Comparator (VSC)	A non-destructive ink exam was conducted relative to the initials and the Kitt signature and the optical characteristics of the inks were consistent.
	Indented Writing	An indentation examination of both pages of Q-1 was conducted. The SK initials that appear visually on page one (1) are indented on page two (2) including the SK initials adjacent to the questioned paragraph five (5).
	Ruler	The horizontal and vertical escapement of the type on the first page of the Q-1 Agreement was measured for any evidence of a misalignment of the type. There was no evidence of any misalignment of the type
XV3U4R	Ultraviolet Light	An ultraviolet lamp was used to compare the paper brightness between the first and second page. The response to UV was similar between both pages.
	Infrared Light	The ink used for the initials on the first page, as well as the second page, responded similarly to infrared light.
	Macroscopic Examination	The inked entries on both pages were written with a writing instrument. The printed text on both pages were printed with a printer having toner technology. The font was consistent on both pages in style and size.
	Visual Examination	The pages were stapled with one staple. No additional staple holes were present. There were no indications of obliterations, alterations or insertions in the document.

TABLE 2

WebCode	Methods/Techniques	Observations
XVWNHM	Microscopic Examination	Printing, font and alignment are consistent.
	Oblique Light	No fibre disturbances observed.
	Infrared Light	Handwriting all have same ink consistency regarding ink differentiation.
	ESDA	Latent impressions observed are consistent amongst the 2 pages
XVXL TJ	Desk Microscope/ VSC - Magnification	No crowded or awkward placements of printed text. No paper fibre disturbance. No different fonts, sizes and/or styles. No uneven margins. No different printing processes. No irregular spacing and alignment, both vertical and horizontal.
	VSC 6000	No ink differences. No paper composite difference. No paper uv/infrared difference.
	ESDA	Indentation where found on page 2, signature "SK"
	Measurement Instrument	No different fonts, sizes and/or styles. Paper size the same.
XXTXWY	Visuell Examination	
	Microscopy	
	Transmitted light	
	Oblique light	
	VSC 6000	IR/UV-light
	ESDA	Indented impression from page 2 is visible on page 1.
XZXMY8	Video Spectral Comparator (VSC)	VSC-6000: technical analysis of inks by technique of absorption and fluorescence of inks, which present (homogeneous) identical behaviors at different wavelengths. VSC-6000: technical exhibition of the substrate of the document to the ultraviolet (UV), no circumstances involving the condition to the substrate of the document. VSC-6000: Technique of comparison of types of font using image overlay
	Visual Examination	verification of systems impresivos with magnifying glass
	Ruler	Millimeter-wave reglillas: for verification of location and spacing of text.
YH86JC	Microscopic Examination	Examined area around staple. No evidence to indicate staple had been removed. Examined visible fold marks. Examined "SK" initials. Appears to be common authorship. The handwriting appeared to be freely and naturally written.
	Ultraviolet Light	Appears to be no difference between the Item 1.1 and Item 1.2 sheets of paper
	ESDA	Item 1.1 contained indented impressions from Item 1.2. Item 1.2 contained indented impressions from Item 1.1.
	Overlays	Overlaid transparency of Item 1.1 over ESDA lift Item 1.2.1. Overlaid transparency of Item 1.2 over ESDA lift of Item 1.1.1.
	Video Spectral Comparator (VSC)	Infrared Reflectance-No visible difference in the ink. Infrared Luminescence-No visible differences in the ink. Ultra Violet-No visible differences in the ink.

TABLE 2

WebCode	Methods/Techniques	Observations
	Oblique Light	No differences in grain of the paper of Item 1.1 and Item 1.2.
YLBZ6Z	Visual Examination	In all methods and techniques utilized, did NOT observed any alterations or evidence of being altered.
	Magnification	Did NOT observed any alterations or evidence of being altered.
	Video Spectral Comparator (VSC)	After using all lights, did NOT observed any alterations or evidence of being altered.
	ESDA	Did NOT observed any alterations or evidence of being altered.
YPQ8QE	Microscopic Examination	Both pages are black-toner printed. The initialled signatures are handwritten with a black ballpoint pen. Beneath all the toner printing there is a line of scattered black toner dots. The staple joining the two pages did not show signs of having been opened or replaced. No signs of erasures or obliterations.
	Macroscopic Examination	The fonts of paragraphs 1-7 were consistent as was the horizontal and vertical spacing.
	Oblique Light	Traces of indented writing were seen on the top left side of the first page of the waiver.
	ESDA	Traces of indented impressions of the initials "SK" were found on both pages of the waiver. Their positions matched the positions of the initials on the corresponding page.
	Video Spectral Comparator (VSC)	Using different light sources, UV, IRL, no differences were found between any of the toner entries. No differences were found between the ink of all the handwritten entries.
	Other - MICR - magnetic ink character recognition	All the toner entries were found to have a magnetic component.
YRXN2Q	Macroscopic/Microscopic Examination	Printing system and margins. No differences are observed.
	Video Spectral Comparator (VSC)	Analysis of inks, UV, IR. No differences are observed.
	Handwriting Examination	Graphic concordance.
	Transmitted Light	No alteration is detected.
	Thickness	No differences are observed.
	Other - Porosity	No differences are observed.
YYVF8Y	Visual Examination	There is no extra staple holes on both pages. There are no page numbers on both pages. There are no alignment defects between the paragraphs.
	Macroscopic/Microscopic Examination	Both papers are the similar color and texture. There are no differences between the font shapes and the size of the text on the both pages. There are no clues about a rubbing on the pages. There are no differences between the paragraph indentations.
	Video Spectral Comparator (VSC)	Spectral analysis of the pen ink and the toner on the pages did not support the alteration. UV analysis of the papers did not give any information about a chemical wipe out.
	Handwriting Examination	All the "SK" letters on both pages are showing the same characteristics and supporting that all of them were written by the same person.

TABLE 2

WebCode	Methods/Techniques	Observations
	Oblique Light	There are no findings proves that the first page was filled on the second page. There are no an extra pen pressure findings on both pages.
	Thickness	Both pages have the similar thickness.
ZB78BY	Visual Examination	Contruction of paragraphs and printed lines. The lack of indented handwritings or marks. The type and size of printed letter used.
	Macroscopic/Microscopic Examination	We have analysed the paper fibres & printing quality, under magnification.
	Video Spectral Comparator (VSC)	The paper & inks response to several lighting sources
ZFXGGR	Visual Examination	Overall observations of documents, including layout, fonts
	Microscopic Examination	Observed printing process(es), writing instrument(s), font(s), staple holes
	Video Spectral Comparator (VSC)	visually examined paper, printing, and ink to determine if pages and writing reacted the same or differently
	ESDA	Used to detect indented writing on each page, and whether the indented writing on one page was consistent with the writing on the other page
	Ruler	Used typewriting grids to determine if there were interlineation issues
ZFZ9JD	Visual Examination	No irregularities observed.
	Microscopic Examination	Black toner and ballpoint pen. No irregularities observed.
	Video Spectral Comparator (VSC)	Ink similar page 1 vs 2. Ink similar page 1 all initials.
	Overlays	Page 1 vertical alignment good. horizontal alignment good. no angle variation.
	Macroscopic Examination	paper similar. one set of staples. folds similar on both pages.
ZKT9QA	ESDA	Handwriting impressions from page 2 were found on page 1, and writing impressions from page 1 were found on page 2. Use of transparencies of both pages show that the handwriting impressions superimpose on the corresponding documents. No impressions from writing other than that found on pages 1 and 2 was discovered. Adobe Photoshop was used to adjust contrast and brightness of ESDA lift images for observation of the best detail.
	Video Spectral Comparator (VSC)	No remarkable results or differences noted between pages 1 and 2. Paper, toner, and ink all have similar optical properties. Toner overspray was noted on both pages. No visible indentations or fiber disturbance was seen using oblique lighting.
	Microscopic Examination	The writing instrument was consistent with black ball point pen, and the printing process was toner on both pages. No differences in font style on similar sections of pages 1 and 2 were observed. No evidence of more than one pair of staple holes was detected.
	Visual Examination	No differences in font size (using the E-ruler) on similar sections of pages 1 and 2 were observed. Transparencies also show that spacing between the end parenthesis after the bullet number and the "I" beginning of the text is the same for both pages. No aberrations in spacing were noted.

TABLE 2

WebCode	Methods/Techniques	Observations
	Other - Grid	Numerous grids of varying sizes were created using Microsoft Word to determine and compare interlinear spacing. The grid with 16.75-point spacing was the best fit for both pages 1 and 2. It was noted on pages 1 and 2 that the baseline of the entirety of the machine-printed text skewed upward toward the right side of the document. No obvious misalignments between portions of the document were detected.
	Handwriting Examination	The initials on page 1 and 2 were intercompared. The writing is similar but too limited to give an authorship opinion.
ZQXAR4	Visual Examination	1. Surface texture of leaves. 2. Variation in thickness and density of paper. 3. Appearance of staple and staple holes. 4. Appearance of folds in the leaves. 5. Appearance of edges of leaves.
	Microscopic Examination	Together with normal and low angle lighting the appearance of the paper surface, the staple and staple holes, the appearance of the printed text and of the handwriting. Search for tracing guide-lines and guide indentations.
	Thickness	Thickness of the two leaves measured with micrometer screw-gauge.
	Ultraviolet Light	366nm and 390nm UV used to search for signs of bleach and ink-eradicator; to observe luminescence of the two leaves; to observe reactions of the printed text and the handwriting ink.
	ESDA	Electrostatic search for indented impressions. Esda laminates used as overlays on the leaves of the waiver.
	Ruler	Sizes of the leaves.
ZRD8LN	Revelation of tracks of pressing	Latent traces of embossed writing on the sheets are positive and match with the original writings shown on the waiver.
	Examination of differentiation of ink: VSC 6000	Under 254, 312 and 365 UV, results are negative. Under transmitted UV, results are negative. Under infrared and switch fluorescence filter from 530nm to 1000nm, results are negative. Under transmitted light, results are negative. Under radiant light, results are negative. Detecting of magnetic inks: any difference of toner.
	Under strong swelling: Macroscope	Observation of toner powder: monochrome laser. Fonts identical.
ZT82ZJ	ESDA	The document consisting of 2 pages was stapled together. The staple holes are consistent with a document stapled only once. Indentations of the writing on page 1 were retrieved from page 2 and indentations of the writing from page 2 were retrieved from page 1 indicating that the two pages were stapled together when the document was completed.
	Video Spectral Comparator (VSC)	The ink of the writing on the two pages was examined under infra-red lighting techniques and were found to be consistent with one another. The paper were also examined under ultra-violet light and were found to be consistent with one another.
	Overlays	Typewriting grids were used to check the alignment of the printing on the pages, no misalignment could be observed, thus indicating that nothing was added to the document. Transparencies were also used to check for any difference in fonts, document used consistent fonts throughout.
ZUKNMD	Visual & Oblique Light	The questioned document contains two pages; they were stapled to each other. I observed one fold near the staple. Images were captured of the fold and staple with an oblique light source before the staple was removed. One fold and one set of staple holes were observed.

TABLE 2

WebCode	Methods/Techniques	Observations
	Oblique light & ESDA	The questioned document was examined for latent writing or marking impressions. Writing impressions on page one was recovered; the source writing is from page two. Writing impressions on page two was recovered; the source writing is from page one.
	Visual, E-Ruler, & Identifont	The font and font size in the paragraphs of pages one and two are in agreement. A comparison was done visually between the two pages and an E-ruler was used to measure the font. Identifont (online font identification source) was also utilized; however, the program did not have sufficient information to draw a conclusion. Two possible fonts were output. Refer to notes [notes not submitted].
	Visual, Photoshop, & Transmitted light	The format, spacing, and alignment of the paragraphs on page one are in agreement and are also in agreement with paragraph seven on page two. Photoshop was utilized to make a grid on the questioned document pages. Paragraph five in particular, is in agreement in font, spacing, format, and alignment with paragraphs one through seven on pages one and two.
	Microscope	Toner printing process was utilized on both pages.
	VSC 6000	The writing ink does not exhibit optical ink differences on either of the pages.
	Visual	Although the handwriting was minimal on page one to be compared with the writing on page two, similarities of the 'S' and 'K' were noted. No determination can be made on the authorship of the hand printing because this examination lacks the proper foundation for comparison.
	VSC 6000	The paper of pages one and two were also observed for possible differences in whiteners that may have been used by observing the documents under a UV source. There was no differentiation between the two pages.
ZXH9KW	Video Spectral Comparator (VSC)	The VSC was used to determine if there were any differences in the inks used to hand write the initials on page 1 or the initials and biographical data on page 2. Spot fluorescence of hand written initials and biographical data showed a reaction of the ink at 545-675nm as compared to the background where no reaction was observed. A consistent reaction was observed on all the handwritten portions: no visible differences in the fluorescence observed on any of the hand written portions. Therefore there is no indication that there was any alteration of the initials on bullet #5.
	Other - MagMouse Toner Examination	The magmouse was used to determine if the toner used to print the printed text on the document displayed any magnetic properties. The examination revealed that the toner used to print the printed text on the document did contain magnetic properties. The magnetic properties were consistently present in the toner used on both pages with no differences in magnetic properties noted within the document. Therefore there is no indication of alteration using a different printing method or different toner.

TABLE 2

WebCode	Methods/Techniques	Observations
	Microscopic Examination	i. High powered microscopy was used to examine the staple present in the document. The examination showed the presence of only one set of staple holes (two holes) corresponding to the staple present on the document. Therefore neither the document nor the staple showed any indications that the staple had been removed and reused or that the staple had been removed and another staple had been used to re-attach the document. ii. High powered microscopy was used to examine the toner printed portions of the document. The examination showed the presence of a distinctive "halo" like effect of toner at the bottom of the printed characters. This effect was present throughout both pages of the document with no characters observed that lacked this effect within the document. Therefore there is no indication of alteration using a different printing method or printer.
	ESDA	ESDA was used to examine the two pages of the document for latent indentations. The examination showed the presence of latent indentations on the front and back of both pages of the document. The indentations found on the front of page 1 were attributed to the handwriting observed on the front of page 2 and the indentations found on the front of page 2 were attributed to the handwriting observed on the front of page 1. Therefore 1. page 1 and page 2 were in direct contact when the handwriting was applied to the front of page 1 2. page 2 and page 1 were in direct contact when the handwriting was applied to the front of page 2 There were no latent indentations that were not able to be sourced nor was there any handwriting that was not found indented where expected. Therefore there is no indication of alteration involving the handwritten portions of the document.

Response Summary

Participants: 213

Methods Utilized

ESDA	140	Magnification	11	Thickness	10
Handwriting Examination	28	Micrometer	5	Transmitted Light	28
Indented Writing	22	Microscopic Exam	116	UV	45
Infrared Light	38	Oblique Light	37	Visual Exam	93
Macroscopic Exam	20	Overlays	22	VSC	179
Macroscopic/Microscopic Exam	30	Ruler	26		

Conclusions

TABLE 3

WebCode	Conclusions
23QQHP	there is no technical evidence indicating the alteration of the document.
29JTMP	The 2 sheets of paper are closely similar, but both appear to be mass produced, readily available paper. The information on both sheets has been printed by the same widely available process. The layout of the printing does not suggest electronic word or paragraph substitution and reprinting of page 1. The presence of the folded pieces of both pages within the staple holes is very strong evidence that the staple is the original staple and that the pages have only been stapled together once. However, I cannot determine if the pages were stapled together before the handwritten entries were made or afterwards. I cannot determine when the handwritten entries were made on the 2 pages. The folding of the pages in opposite planes and lack of indented impressions of page 1 entries on page 2 may suggest the order that 1)the two pages were stapled together then 2)the pages were separated by folding the bottom page away from the top page 3) the handwritten entries were made on the top page with the top page being effectively a single sheet.4) The top page was then folded away from the bottom page and the handwritten entries were made on the bottom page with the bottom page also effectively being a single sheet. Alternatively the pages may have been completed separately and stapled and folded at a later time for whatever reason. I have not found any physical evidence that indicates that either page has been substituted or altered after completion, but I cannot entirely exclude this possibility as the document has been produced by readily available processes on readily available paper and I have not been given information as to the presentation of a non-disputed document.
2JDBWN	Based on the documents submitted, the questioned waiver was not altered following its completion by the participant.
2JWAUM	There is extremely strong support for the evidence given the proposition that the document has not been altered following its completion by the participant.
2NNFHA	There is no evidence that Q1, a two page document, were altered.
2NPEK6	The handwriting impressions evidence showed that page 1 of "Q1" was written when it was on top of page 2, and vice versa, page 2 was written when it was on page 1, suggesting that the two pages were completed as a set. There were no inconsistencies and irregularities observed. Hence, there was no evidence to show that the questioned waiver "Q1" was altered after its completion by the participant.
2UXHUT	Although a definite determination could not be reached due to the absence of known or reference items for comparison and the possibility that other analytical techniques not conducted by this laboratory might be able to provide further information, nothing was observed to indicate Item 1 (Q1) was altered. Indented writing, designated Item 2, was observed during the examination of Item 1 (Q1) using the Electrostatic Detection Apparatus (ESDA). Two copies of the Item 2 ESDA lifts are enclosed. Additional assessments and observations have been made and recorded for future comparison purposes.
2XE3HT	There is the different brightness on IR light condition, when we examined the paper of 1 page and 2page of the waiver.
2XU4MG	It was determined the (2) page waiver for the Sun and Fun 5K race was not altered.
2Y8VKC	No evidence of an alteration to Exhibit 1 (page 1) and/or to Exhibit 1 (page 2) was detected or observed.
37NRVR	The Exhibit Q1 two-page waiver for the Sun and Fun 5K race was not altered following its completion by the participant. This finding is supported by the fact that all of the handwritten entries in page 1, which are indented in page 2, and all of the handwritten entries in page 2, which are indented in page 1, correspond and align with each other. The indented writings on pages 1 and 2 were developed using the Electrostatic Detection Apparatus (ESDA). Images of the developed indented writings were compared with the ink pen entries and found to correspond/overlay with one another. This demonstrates that page 1 was written with page 2 beneath it and page 2 was written with page 1 beneath it. The

TABLE 3

WebCode	Conclusions
	alignment/overlays of the developed indented ESDA images with the handwritten entries confirm that the questioned #5 entry was part of the original waiver document that was initialed by the participant.
38EYXF	After an examination of the Questioned Document marked "Q1" I reached the conclusion that no alterations and/or erasures was effected to the disputed document.
38GJYB	No evidence of alterations, additions, obliterations, erasures, or page substitutions was observed on Q1. The questioned waiver was PROBABLY NOT altered following its completion by the participant. A conclusion of PROBABLY NOT altered is a qualified opinion based on the fact that no known specimens were submitted for comparison.
3BHQ7G	The document studied WAS NOT ALTERED following its completion by the participant.
3CAL3B	The questioned waiver was probably not altered. The questioned waiver was processed for the presence of indented handwriting impressions. Impressions were found. The impressions found on the first page of the waiver were sourced to the handwriting on the second page of the waiver. The impressions found on the second page of the waiver were sourced to the handwriting on the first page of the waiver.
427REQ	On further examination, I found that there was no evidence of alteration on questioned document "Q1". Hence, I am of the opinion that the questioned waiver "Q1" was not altered following its completion by the participant.
436WTZ	In light of the above observations, I found the evidence to support the proposition that the document in question has not been altered in any way, thus attesting that it is genuine.
4AH7Q7	Item #Q1 was NOT altered following the completion of the handwritten entries on pages one and two.
4BWE6M	In course of examination found no evidence or no sign supporting alternation of the questioned waiver.
4EAGRH	Visual, microscopic, and instrumental examination and comparison of the submitted document in Q1 revealed the following: No apparent evidence of alteration was revealed during the examination of Q1. The paper, pen ink, and printer ink on pages 1 and 2 of the documents could not be differentiated. Nor were differences noted between the font and spacing on pages 1 and 2. Q1 was processed for indented writing with positive results. Page 1 contains indented writing which is consistent in content and location to the handwritten entries on page 2. Page 2 contains indented writing which is consistent in content and location to the handwritten entries on page 1. Page 1 was written with page 2 below it and page 2 was written with page 1 below it. The developed indented writing is being returned to your agency as a sub-item of Q1. If additional examinations are requested, return Q1 in its original packaging.
4F6VGW	The questioned document identified with the heading "The 2017 Sun & Fun 5K" signed by Samantha Kitt, Does not present alterations in its content.
4JRG9J	The results of our examination do not show any traces indicating that the section 5 of page 1 was altered. If the two pages of the document were stapled together at the time of the completion by the participant and if we trust Ms. Kitts statement concerning her handwriting and signatures, then the ESDA examination provides a strong evidence that page 1 was not replaced. If the two pages were not stapled together and were laying seperately at the time of completion, then the possibility can not be ruled out that page 1 was replaced, stapled together and signed with forged initials. For a final conclusion we would need information regarding the state of the waiver form during completion. Based on our examination we conclude that the questioned waiver was not altered. BUT in lack of the information if the form was stapled at the time of completion we cannot determine whether or not the questioned waver was altered.
4JT8HM	After the analysis it is concluded that the questioned waiver WAS NOT ALTERED following its completion by the participant
4MAJCH	In light of the abovementioned observations, no evidence of alterations were found on the questioned document and therefore i came to the conclusion that the questioned race waiver (Q1) was not altered

TABLE 3

WebCode	Conclusions
	following its completion by the participant.
4N3NJA	Forensic examination of Submission 001 found no dissimilarities in font on pages one and two of the document. The staple in the document was examined and only one set of holes consistent with the staple were seen. The location of the fold in the paper was consistent between pages one and two. Forensic examination of Submission 001 using the microscope found no dissimilarities in toner or ink on pages one and two of the document. Forensic examination of Submission 001 using the Video Spectral Comparator (VSC4) found no dissimilarities in the ink components and paper on pages one and two of the document. Forensic examination of Submission 001 using the Electrostatic Detection Apparatus (ESDA) found indented writing on page one consistent with the writing on page two and indented writing on page two consistent with the writing on page one. Lifts were taken. Based on the lack of dissimilarities on pages one and two, and the presence of the indented writing, it is the opinion of the undersigned examiner that the questioned waiver was not altered following its completion by the participant.
4QNC8H	There were no observable details which would indicate that the Waiver, Q-1, was altered.
6AFMPB	After the examination of the disputed document I observed the following: There are similarities in respect of font on the disputed document. One writing instrument was used to for initializing the document. I Found sufficient evidence to support the proposition that there is no evidence of Alteration on the questioned document. Therefore the document was not Altered.
6BTCTM	Alterations were not detected on Item (Q1). However, this conclusion does not preclude the possibility the Item 1 (Q1) was altered due to the possibility of other analytical techniques and a known standard(s) which may be used to examine Item 1 (Q1). Indented writing (ESDA lifts designated as Item 2) was observed on Item 1 (Q1) pages 1 and 2.
6FJL3L	1. On examination, no signs of alteration such as roughened paper surface or insertion of printing were found on both pages of "Q1". 2. On the other hand, indented handwriting impressions were visualized on both pages: a. Handwritten words visualized on the electrostatic lift of page 1 were found to match the initial and handwritten entries made on page 2. b. Handwritten words visualized on the electrostatic lift of page 2 were found to match the initials made on page 1. These findings show that: a. The six initials "SK" on page 1 were written with page 2 beneath it. b. The initial "SK" and all other handwritten entries on page 2 were written with page 1 beneath it. 3. The above evidences show that "Q1" was not altered following its completion by the participant.
6U4297	Upon completion of an examination of the submitted Q-1 exhibit, it is the opinion of this examiner that there is a strong probability that the Q-1 exhibit has not been altered. This is not a conclusive opinion due to no genuine waiver form from this event being submitted to compare to the Q-1 exhibit. Further examination in this case will require the submission of said form to compare to the Q-1 exhibit.
6VBNEJ	THE QUESTIONED WAIVER (TWO-PAGE FOR THE SUN AND 5K) WAS NOT ALTERED FOLLOWING COMPLETION BY THE PARTICIPANT.
6YF7Q7	There is no evidence that Exhibit 1(1-2) were altered. Exhibits 1(1-2) were examined for any legible indented writing images. Indentations from Exhibit 1(1) were found on Exhibit 1(2). Indentation from Exhibit 1(2) were found on Exhibit 1(1).
6YW2NM	Advance documentologico to document detailed analysis reason for study, can be inferred that you there is no lifting of fibers, wear of the adhesive on the substrate indicating an alteration of the document; In addition to the physical analysis of inks, is not evidencio change in their physical behavior. Likewise when the superposition of the characters did not appreciate difference in interliterales, interverbales, and Interline spaces and morphology of the source used Therefore it is concluded that document motive of study does not present alteration
73RCV7	On the basis of the examinations conducted on Q1.1 and Q1.2, it is my opinion that the Q1 two page race waiver form was not altered following its completion by the participant.
743EJQ	According to the results of the inspection, there is no evidence to indicate that Q1 was altered.

TABLE 3

WebCode	Conclusions
77BCBM	Although a definite determination could not be reached, nothing was observed to indicate Item 1 (Q1) was altered. The possibility that other analytical techniques might be able to differentiate the item must be considered. In addition, using the Electrostatic Detection Apparatus (ESDA), indented writing that originated from Item 1 (Q1), page 2 was observed on Item 1 (Q1), page 1 and indented writing that originated from Item 1 (Q1), page 1 was observed on Item 1 (Q1), page 2 indicating the Item 1 (Q1) pages 1 and 2 were in contact during the preparation of the handwritten entries. The ESDA lifts have been designated as Item 2. The questioned handwriting on Item 1 (Q1) is suitable for future handwriting comparisons.
7ADEWG	After an examination I reached a conclusion that the two-page waiver form for the sun and fun 5k race was not altered
7KBBYJ	No evidence of alteration or forgery the document was disclosed.
7NTBFK	None of the elements normally associated with an alteration attempt were detected during the examination. The questioned waiver was not altered following its completion by the participant.
7RW7ZM	Although a definite determination could not be made, alterations were not detected. Nothing was observed to indicate that Item 1 (Q1) was altered due to the lack of observed additions or deletions. Also, there were no differences noted in the physical characteristics observed on the two pages of Item 1. This conclusion does not preclude the possibility that Item 1 was altered. The possibility that other analytical techniques might indicate an alteration is present must be considered. Additionally, there were no standards submitted for comparison to Item 1. Indentations were observed on Item 1. Electrostatic lifts of these indentations were prepared, have been designated as Item 2, and are available. No indentations of unknown value were observed on these electrostatic lifts.
7T4JLV	In light of my observations, I concluded that there are no signs of alterations on the document.
86EF2J	As a result of examination and comparison based solely on the material submitted, the following conclusions and observations are opinions based upon my experience, education and training and are as follows: 1. The questioned waiver was not altered following its completion by the participant. a. Exhibit Q1 was examined and it was determined that the printing process on the document submitted is an electrophotographic copy, however, the "master copy" that was utilized to create this copy was offset lithography halftone. b. The font contained on exhibit Q1 is Calibri and was measured at 21, 14, 11 and 9 points at various places within the document. c. The paper is standard 8 1/2" X 11" and does not contain any watermarks. Both documents reacted similarly when examined under ultra-violet light sources. d. Both pages of exhibit Q1 were examined with the video spectral comparator and all of the black ball point pen inked entries reacted consistently with one another. e. Exhibit Q1 was scanned and examined with a grid from Adobe Photoshop CS2 and none of the lines or paragraphs appeared out of alignment. This was also completed with a stereo microscope and micrometer and the same conclusion was reached. f. The sets of initials were intracompared and all appear consistent with one another. g. Exhibit Q1 contains a back facing fold wherein a staple intersects the paper; page two of exhibit Q1 contains a forward facing fold which would be consistent with the paper being folded over the staple and the second page being folded back from the first. 2. Exhibit Q1 was scanned for preservation by Specialist [Name]. 3. An ESDA (ElectroStatic Detection Apparatus) examination for the detection and reading of indented writing, typing or other identifying impressions was performed on the questioned waiver by Specialist [Name]. a. Observed approximately 1 inch from the left hand margin on page one was a vertical straight line that was visible on most of the page. b. It was observed that several areas from page two overlaid on page one indicating that page one was folded over and page two written on top of page one. 4. Exhibit Q1 was processed for latent prints with liquid ninhydrin by Specialist and the evidence was forwarded to the Latent Print Section for evaluation. 5. Exhibit Q1 was processed for DNA evidence by Specialist and the evidence sealed and placed into property.
8HM4AF	After examination I reached a conclusion that the questioned weaver was not altered following its completion by the participant.

TABLE 3

WebCode	Conclusions
8K6D6Y	Deciding whether the first page of the represented document was altered or not is impossible as printed and written texts on both pages of the document after the comparison appear not to have any differences. The only deference has been revealed in the thickness of papers of the document namely the first page is a bit thicker that the second one.
8L3NZ3	It was observed that both pages of the document (Q1) has been made with a printer/photocopier based on electrophotography. No significant differences between the details or positioning of the printing on pages 1 and 2 were observed. No observations were made that would indicate that the document would have been dismantled. No observations were made that would indicate that text alterations would have been made to the document. On page 2, indented impressions matching the handwritten entries "SK" on page 1 were observed. This observation links the page 1 with the page 2, which bears a genuine signature of Ms. Kitt confirmed by herself. Based on the findings listed above it can be concluded that the document has not been altered.
8RTZZ6	Our technical results suggest that the questionnal waiver wasn't altered following is completion by the participant.
9RKGRR	[No Conclusions Reported.]
9VJUBB	Printed and manual content disputed waiver form Q1 does not present any alteration by deleted, scraping, graft, addition or subtraction, which have sougnt to modify their original content, given that different intensities of ink in printed and handwriting, interruption in the prints, adding signs or printed texts, undetected irregularities in horizontal or vertical prints, lifting of fibers of paper and the presence of vestiges of printed and handwritten signs that could be eradicated.
A9NE89	In light of the observations made during the examination, I reached the conclusion that the questioned document(waiver)is authentic.
AEDQPK	Item Q1 was examined visually, mirosopically and instrumentally using various light sources and aids for evidence of alterations. Based on these examinations: No differences were noted between the black ballpen entires on Q1-1 and Q1-2. No indication of insertion of an entry or page Items Q1-1 and Q1-2 were examined for the presence of indented writing. Indentations of this sort commonly occur when writing is done on one document producing indentations of that writing on the document underneath. The results of this examination are as follows: On Item Q1-1 indentations were developed that match the handwriting entries from Item Q1-2. This indicates that Item Q1-2 was on top of Item Q1-1 when those entres were written. On Item Q1-2 indentations were developed that match all of the handwritten initials from Item Q1-1. This indicates that Item Q1-1 was on top of Item Q1-2 when those entries were written.
AGWT8P	The initials "sk" on the first page are indented on page 2 The staples on the pages were not removes. The pen used on all pages reacted the same. The font and word spacing is the same In light of the above mentioned observations I reached the conclusion that the waiver form marked as item Q1 was not altered
AK6UHN	The evidence was assessed in terms of the following propositions: H1: Q1 has not been altered following its completion by the participant, versus H2: Q1 has been altered following its completion. Conclusion: The evidence provides extremely strong support for proposition H1, rather than proposition H2. Note: It is important to note that opinions expressed above are based upon the information and exhibits provided to the examiner, as well as the specific propositions outlined above. Should the information, exhibit material or propositions change, the opinion may also change. See remarks below (additional comments).
AM8X4J	Exhibit Q1 (1 and 2) was examined visually, microscopically, under transmitted, ultraviolet, infrared, and infrared luminescent light sources. No differences or alterations were noted regarding font, spacing, alignment, format, ink or printing process on Exhibit Q1 (1 and 2). The machine-generated portions of Exhibit Q1 (1 and 2) were produced using toner printing technology. The handwritten entries on Exhibit Q1 (1 and 2) were produced with a black ballpoint ink. Additionally, the handwritten entries on Exhibit Q1 (1 and 2) appear to be naturally written and contain a sufficient amount of identifiable handwriting

TABLE 3

WebCode	Conclusions
	characteristics for comparison with a known writer. Exhibit Q1 (1 and 2) were also examined for the presence of handwriting indentations using an Electrostatic Detective Apparatus (ESDA) and the results were positive. Please see the attached images [images not submitted]. Exhibit Q1 (1 and 2) and the original ESDA indentation lifts were digitally scanned and a DVD of these digital scans will be retained by the laboratory as evidence.
AQ4LH6	After examination with the disputed document I reached the following conclusion that the exhibit mentioned in paragraph was not altered.
AVZ7QV	IT CAN NOT BE ESTABLISHED if the document dubitado format exemption agreement was altered or not after the participant's diligence. According to the protocols and procedures of our laboratory, we can not conceptualize in function of time, mode or place, therefore in my concept I do not know if later this document was altered or not. Now, we do not have a standard document to establish the original characteristics and peculiarities of its content.
AZ9NPN	As a result of my examinations and comparisons, no evidence was found to indicate that the race waiver, Q1, was altered.
B8BZJZ	It has been concluded that the submitted exhibit Q-1 item was not altered after it was completed by the applicant.
CDE7RB	After an examination of the respective material, I made the following observations: 1 In respect to the indentations found on both pages: 1.1 The indentations found on page 2 of the document revealed that they were of a similar size, position and form to the initials written on page 1, therefore indicating that they were executed while page 1 was in the same position in relation to page 2 as received. 1.2 The indentations found on page 1 of the document revealed that they were of a similar size, position and form to the initials, signature and writing written on page 2, therefore indicating that they were executed while page 1 was "folded" behind page 2 (facing forward). 1.3 Therefore the above correspondences of the indentations found on both pages indicate that page 1 and page 2 were completed one on top of the other, respectively. No other indentations could be found that did not correspond to the writing on both pages. 2. When the area around the disputed content, namely "exposure to native poisonous plants" in paragraph 5 is exposed to various light sources and magnification, no signs of alteration (such as surface ink and fiber disturbance as well as the use of a different font type) are revealed. 3. The writing on both documents showed no signs of ink differentiation, thus indicating that the ink used in all the writing reacted similarly when exposed to the same specialised light source. 4. The document was most probably stapled once, due to the absence of larger and more than two holes per page, around the staple area. 5. Based on the aforementioned observations, I came to the conclusion that the race waiver had not been altered following its completion by the participant since no signs of alteration could be found on the document in question.
CDRTAP	There are no signs of alterations on the waiver.
CEQYQJ	We could find a difference on IR light condition, when we examined the paper of 1 page and 2 page of the waiver. But there is not other special thing. So we are not sure that it's from the forgery or the coincidence.
CF2ZDH	Based on the evidence submitted, no evidence was found that Lab Item 1 (Q1) was altered and it appears to be a genuine document. The initials on page 1 Lab Item 1 (Q1) were developed using the ESDA on page 2 of Lab Item 1 (Q1). The ESDA print is being retained and labeled as Lab Item 1.1.
CTBJ9R	I found no evidence of alterations, erasures or other changes made to this document.
CXHAAC	The questioned waiver, 001-A1, was probably not altered. The examination of additional known waivers issued by the race organization may provide the basis for a more conclusive opinion.
CXJZCY	No signs of alteration or page substitution were observed on Q1.
CZ6LDN	The questioned waiver WAS PROBABLY NOT ALTERED following its completion by the participant

TABLE 3

WebCode	Conclusions
	because of simmularity of handwriting form initial signature 5th SK and same kind of ink test result, toner and paper
D4N37T	All the finding during the examination of questioned document of Item Q1 support the contention that the questioned waiver WAS NOT ALTERED following its completion by the participant. All pages of the document were produced simultaneously. Ininitial on page 1 written used the same pen with signature on page 2, that indicates that the document was not altered. the same ink of printers and pens were use to produce the race waiver. In additional, an examination of the impression evidence was conducted on the questioned documents using the ESDA-2, visible indented impression of handwriting and initial of Samantha Kitt were develop on both sides of every pages but no other impressions of evidentiary value were detected. An examination of the printing and handwriting ink was conducted on the questioned document using the VSC 6000. The printing and ink on page 1 and page 2 exhibited shown same optical characteristic on both pages.Base on the aforementioned observations, I came to the conclusions the questioned document Item Q1 are authentic.
D799BV	Item Q1 was probably not altered after completion.
D7UNUT	All the finding during the examination of questioned waiver WAS NOT ALTERED following its completion by the participant. All pages of the document were produced simultaneously. Ininitial on page 1 written used the same pen with signature on page 2, that indicates that the document was not altered. the same ink of printers and pens were use to produce the race waiver. In additional, an examination of the impression evidence was conducted on the questioned documents using the ESDA-2, visible indented impression of handwriting and initial of Samantha Kitt were develop on both sides of every pages but no other impressions of evidentiary value were detected. An examination of the printing and handwriting ink was conducted on the questioned document using the VSC 6000. The printing and ink on page 1 and page 2 exhibited shown same optical characteristic on both pages.Base on the aforementioned observations, I came to the conclusions the questioned document Item Q1 are authentic.
DBHBMD	During the examination no evidence of alteration was determined. The findings of the examination indicate that no modification of the waiver were done.
DCXRG7	Although alterations were not detected, a definitive determination could not be reached whether or not the Item 1 (Q1) waiver was altered due to the lack of known or comparable reference material, as well as the possibility that other analytical techniques not conducted at this laboratory could reveal alterations. Indented writing, designated Item 2, was observed on pages 1 and 2 of Item 1 (Q1) using the Electrostatic Detection Apparatus (ESDA). These ESDA lifts are considered secondary evidence, and copies will be forwarded to your office along with a copy of this report. Additional observations and assessments have been made regarding the submitted item (Q1) and recorded for possible future comparisons.
DP4KDP	During an examination of the document at hand, I made the following observations: (1) The indentations on page two corresponds with the writing on page one. (2) The ink reaction and the writing style is consistent from the first page to the last page, and the ink reacts the same. (3) The document in question exhibits no signs of page substitution. It shows that it has been stapled once (considering the amount of staple holes). In conclusion, I found that the document (Waiver) in question exhibits no alterations of any nature. The document in question has no signs of alteration following its completion by the participant.
DP6FXG	The questioned document is a laser printed double sheet and many times handwritten signed product. The printed area is not manipulated such as the handwritten signatures. The first page contain an indented "SK" sign at the top left corner which is an exact evidence of the genuity of the stapling.
DQUNZ6	After an examination I reached a conclusion that the two-page waiver form for the Sun and Fun 5K race was not altered following its completion by the participant.
DW3AN3	After examination of the disputed material I reached a conclusion that the exhibit mentioned in paragraph 3 was not altered.
E7A8DQ	The absence of overwriting, hesitation/pen lifts, and the consistency of handwritten/hand printed entries

TABLE 3

WebCode	Conclusions
	and physical evidence (e.g. similar paper properties, latent writing impressions, lack of ink and writing instrument distinctions), support the conclusion that Exhibit Q1(1-2) was probably not altered.
EGKNXG	The waiver form was not altered after the completion. The conclusion was based on the facts that: 1. Fonts types used on the waiver form are consistent. 2. No extra staple holes observed on both pages. 3. Pen ink absorption on the document was similar on both pages. 4. Indentations (of SK) are appearing on the second page.
ELD2KQ	Due to the above, the doubted document of WAIVER AND RELEASE OF RESPONSIBILITY of April 1, 2017, WAS NOT ALTERED after the participant's filing.
EMWKRJ	No evidence of significance was found to indicate that the questioned waiver, Exhibit Q1, was altered.
EN34KX	There is no evidence that Exhibit 1(1-2) were altered. Exhibits 1(1-2) were examined for any legible indented writing. Indentations from Exhibit 1(1) were found on Exhibit 1(2). Indentations from Exhibit 1(2) were found on Exhibit 1(1).
EPV6B9	There is evidence to support the proposition that there were no alterations on the two-page race waiver. Evidence is as follows: 1. Presence of the indentations of the writing from page one "Q1a" on page two "Q1b" reading "SK" proves that both papers were stapled together when signed. 2. Pen ink reflections under Infrared light with band pass filters indicate that the same pen was used to write on both "Q1a" and "Q1b" (inks reflect the same way) 3. Physically matching staple holes on "Q1a" and "Q1b". 4. Same font type and size used on both Q1a and Q1b on all initialized paragraphs including paragraph 7.
F3439U	The propositions considered were: P1: Q1 is the result of alteration P2: Q1 is not the result of alteration On the basis of the examinations undertaken, I found no evidence to suggest that Q1 is the product of alteration. However, it may be possible to alter a document without leaving evidence of alteration (at least that which is detectable at the level of the examinations undertaken). Therefore, while my observations are not supportive of P1 and they are supportive of P2, proposition P1 cannot be excluded. I consider the probability of obtaining the observed evidence if P1 is true to be very low. I consider the probability of obtaining the observed the observed evidence if P2 is true to be very high. I concluded that the evidence is strongly supportive of proposition P2 and not of proposition P1. No conclusion is expressed regarding the genuineness or otherwise of the initials, signature or handwritten entries, nor regarding the genuineness or otherwise of the document as a whole (for example, while there is no evidence that Q1 has been altered, it may be a complete fabrication).
F6ANPU	There is a strong probability that the Q1 questioned waiver was not altered following its completion by the participant. This is not a conclusive opinion. If a more conclusive opinion is desired additional unquestioned participant waivers should be submitted for examination and comparison.
F9RN6A	The paper of the two pages of questioned waiver is the same. Toners used on the two pages are not differentiated between them as pen's inks. The same physical mark on the paper caused by rollers and the pick-up mechanism of the machine is revealed. No sign of alteration is observed. The questioned waiver was not altered following its completion by the participant. It's genuine.
FEC2MA	The questioned waiver was probably altered following its completion by the participant. The document contains the features that it was completed in two sets. It is not possible to accurately determine the sequence and manner of the changes, due to a lack of features, formatting etc.
FJ682C	Alterations were not detected on the Item 1 (Q1) questioned document. However, it should be noted that no standard was provided for comparison and while no indications of alteration were detected, this does not preclude the possibility that the Item 1 document was altered, therefore, additional chemical analysis is recommended. Furthermore, indented writing was observed using the Electrostatic Detection Apparatus (ESDA) on both pages of Item 1 (Q1), which corresponds with the original handwriting on the opposite page (i.e., indented writing on page 2 that corresponds with the writing from page 1).
FPGTEP	Base on the examination, it is determined that the questioned waiver (Q1) was not altered.

TABLE 3

WebCode	Conclusions
FYCD7F	The questioned waiver document was not altered.
FZC3ZD	There is no any observation for alteration in the waiver from.
G3WDA3	The questioned waiver identified as Item Q1 presents the same structural designs in the printed texts and handwriting; it also recorded equal presence of ink traces to the outline of the printed signs; besides it registers the same distribution and alignment in the graphic plane. Previous evidence is enough to conclude that the questioned waiver, signed by Mrs. SAMANTHA KITT dated 4/1/17 WAS NOT ALTERED following its completion by the participant.
G8TXDL	Based on the aforementioned observations mentioned on page 2, I found no form of alterations to the document in question. The above conclusion was reached by using processes which requires proficiency in the examination of question documents.
G9KZZ2	After examination and comparison with the reference material I reached a conclusion that the original "SUN and FUN 5K Race Waiver" consisting of two (2) pages, dated "4/1/17", marked as "Q1-1" and "Q1-2" by myself, was not altered.
GJN8TT	Examination of paragraphs 1-7 of the questioned waiver Q1 revealed no discrepancies in the font size, font design, alignments and printing details of the English letters. Besides, no discrepancies in the spacing between the words on paragraphs 1-7 were found. Furthermore, no discrepancies in the alignments of margins and spacing between paragraphs (paragraphs 1-7) were found. In addition, no signs of alteration by means of insertion, erasure or cut-and-paste method were found. In addition, indented writing was found on pages 1 and 2. The details and relative positions of the respective indented writing on page 1 and page 2 were consistent with the handwriting and/or signatures on page 2 and page 1 respectively. The findings indicated that page 2 was placed under page 1 while the participant was writing on page 1 and vice versa. In view of the above findings, I am of the opinion that the questioned waiver was not altered following its completion.
GMJ3JU	The results of the forensic examination of the questioned waiver prove, that the waiver was not altered.
GPCY73	The two pages of the race waiver does not present signs of alteration as erasure, scraping, addition, lifting of fibers or thinning of paper or any other trace that indicates that the mentioned documents has been altered by any of this systems.
GRDWJG	I find no evidence of erasures/abrasions to paragraph 5 of Q1 or any other areas on the two pages which form Q1. I find the type style and size to be consistent across the two pages of Q1. I find the line spacing and margins to be consistent across the two pages of Q1. I find the handwritten initials at the ends of paragraphs 1-6 on page 1 of Q1 to be indented, in alignment, onto page 2 of Q1. I find the handwritten entries on page 2 of Q1 to be indented onto page 1 of Q2. In my opinion, page 2 of Q1 was written whilst resting on top of page 1. Considering my findings collectively, I find no evidence to suggest that alterations have been made to Q1.
GVF6GY	The questioned waiver WAS NOT ALTERED following its completion by the participant
H6XWPA	Upon extensive forensic examination employing the methodology and Standards of the Scientific Association of Forensic Examiners, it is the opinion of this examiner that the document was probably not altered. Before providing a more definitive opinion, this examiner would request additional exemplars for comparison to the initials on page one and two.
H7EV8D	We could find a very small difference of brightness on IR light condition, when we examined the paper of 1page and 2page of the waiver. But there is no certain evidence that prove the waiver is altered.
HDQX4E	The questioned waiver was not altered following its completion by the participant.
HKEWHU	3.1) No differences were observed between the first page (Q1a) and the second page (Q1b) of the Two-page waiver. Based upon the examinations conducted, the questioned waiver was not altered

TABLE 3

WebCode	Conclusions
	following completion by the participant. Specifically,- no differences were observed by visible examination of the type font (for paragraphs 1 through 7),type font alignment(for paragraphs 1 through 6); visible, infrared, and infrared luminescence of the handwritten inked entries, staple hole configuration; or ultraviolet response for paper optical brighteners. In addition, the handwritten entries from the first page (Q1a) were indented onto the second page (Q1b) and the handwritten entries from the second page (Q1b)were indented onto the first page (Q1a). 3.2) The indented impression (ESDA) lifts are being returned as item 01.01 for your safekeeping. The staple removed from the Waiver & Release of Liability,Release of Likeness form (Q1a, Q1b) is being returned as item 01.02 for your safekeeping.
HRBPR9	The document dubitado format of agreement of exoneration, was not altered after the diligenciamiento of the participant
HUX9T7	No evidence was located to support the contention that the questioned document has been altered.
HUYZWT	While an alteration cannot be definitively ruled out, the examination revealed no evidence to suggest that there had been any alteration to the document following its completion by the participant.
J473NY	It is highly probable that Item Q1 was not altered with respect to an insertion or other alteration to the text of the fifth paragraph on page 1. This opinion is based on no visible erasures, obliterations, or other alterations. No spectral differences were noted between the paper of or the inks on pages 1 and 2, nor were there differences in paper morphology via transmitted light examination. Indented impressions of the handwritten entries on page 1 were noted on page 2 and indented impressions of the handwritten entries on page 2 were noted on page 1. Only one staple and one set of staple holes was observed. No conclusion could be reached as to the writer of the hand printed entries on either of the Q1 pages or the signature on page 2. This opinion is based on a lack of comparable known handwriting or hand printing. There are no indications of simulation or tracing of the handwritten/hand printed entries. Should an additional examination be desired, handwritten and hand printed requested exemplars and collected standards from a proximal time period should be submitted.
JCYBBB	Purpose of submission: We have been requested to examine the "Two page Waiver" form to determine whether or not any alterations had been made to the document, in particular the introduction of printed material relating to the exposure to poisonous plants. Findings: The document was examined in detail, in particular section 5 on page 1 (which refers to "exposure to native poisonous plants"). In our opinion, and given the examination types available to us, there does appear to be any indication of erasure, addition or amendments to the document, and in particular Section 5).
JH4C9J	Based on the aforementioned observations, I came to the finding that the waiver in question was probably not altered.
JKNACG	After an examination of the Questioned Document marked "Q1" I reached the conclusion that no alterations and/or erasures was effected to the disputed document.
JWGK83	The results of the document examination indicate that the questioned waiver Q1 shows no indications for alterations or falsification. Basic evidence for this is: All handwritings on Q1 are written with black ballpoint ink and show among each other the same physical characteristics. The paper and the laser printed Text show no clues of alteration.
K3LR2B	The questioned document 'Q1' had no alterations following its completion by the participant.
KDPVDZ	While no alterations were detected on the Item 1 (Q1) waiver form, a definite determination could not be reached whether or not this item was altered due to the lack of observed additions or deletions and the lack of a known waiver form. Indented writing of unknown value was observed on both sides of each page of Item 1 (Q1) and designated Item 2. Additional assessments were observed and recorded for future analysis.
KGLP7V	The questioned waiver was not altered following its completion by the participant

TABLE 3

WebCode	Conclusions
KQRMX6	Based on the findings of our examination, it is highly probable the questioned waiver was not altered.
L267V8	There is no any observation for alteration in the waiver from.
LBF9C2	Examination using magnification and specialized instrumentation revealed that Exhibit Q1 has not been altered. There is no evidence of page substitution, chemical or mechanical erasure or interlineation. Additionally, the font style and size of the text is consistent throughout the document. Furthermore, examination with the ESDA found indented writing on pages 1 and 2 of Q1 that confirms that both pages of Exhibit Q1 were present when the pages were initialed and signed.
LCBT7R	Based on my professional experience, established scientific principles, and full consideration of the findings from a thorough and complete forensic examination, it is my opinion that Q1.1 and Q1.2 were prepared as a multiple page document and do not bear evidence of documents having been produced and/or altered by way of interlineations, additions, or substitutions. Therefore, it is my opinion that the race waiver (Q1.1 and Q1.2) was not altered following its completion by the participant, Samantha Kitt.
LF98V3	I have found that the paragraph dealing with poisonous plants (section 5) is correctly aligned with respect to the rest of the document. It is also in the same font size. ESDA examination shows that impressions of these initials are shown on page 2 and are correctly aligned. In my opinion there is conclusive evidence that section 5 has not been added or altered. I have also considered the possibility that the Waiver in large text on page 2 has been inserted. I have found no evidence to support this suggestion. However, it may be possible to insert sections of text using the same printer originally used to prepare the document. I cannot therefore exclude the possibility that this section may have been added.
LHBGAD	3.1 The Questioned Race Waiver Document (Q1) was not altered following its completion by the participant. 3.1.1 The inks on page 1 and 2 reacts the same under UV and IR lights. 3.1.2 The letters "SK" found on page 1 of the questioned document "Q1" are also found as indentations on page 2 of the same document and fit perfectly on each other when superimposed.
LN3FA3	The questioned waiver was not altered following its completion by the participant
LR2WLW	Item Q1 is a two-page computer-printed document bearing handwritten entries on both pages. It is alleged that the document has been altered to add information regarding poisonous plant exposure, which had not previously been part of the text. Item Q1 mentions poisonous plant exposure in paragraph 5 on the first page of the document. There is a strong probability that Document Q1 has not been altered in order to add the poisonous plant exposure entry. This finding is based on the absence of any evidence suggesting a physical alteration of the document. In addition, indented handwriting impressions of all of the handwriting from page 1 were developed on page 2. Further, indented impressions of all of the handwriting from page 2 were developed on page 1. This finding demonstrates that the two pages of Item Q1 were together when the handwriting was placed on them and rules out the possibility of a page substitution.
LWVNWE	The printed entries on Exhibit Q1(1-2) were prepared using a toner printing process and no difference in this process was noted between the two pages. The handwritten entries were executed with a ballpoint pen. A subsequent examination with infrared, infrared luminescent, and ultraviolet light sources did not reveal any ink or paper differences. Exhibit Q1(1-2) were examined for handwriting indentations using incident and an an electrostatic detection apparatus (ESDA) and the results were positive for both pages. The indentations from the handwriting on page one were indented on page two, and the indentations from the handwriting on page two were indented on page one. This indicates that both pages were together when they were signed and initialed. No evidence of alteration was found in Exhibit Q1.
LZV7QZ	The 2-page waiver for the Sun and Fun 5k race display no signs of additions or alterations following its completion by the participant.
M4Q8CE	In conclusion I found the evidence to support the proposition that the questioned document was not altered, as there was no indications of any alterations.

TABLE 3

WebCode	Conclusions
MDHPXM	The evidence provides very strong support for the proposition that the questioned waiver has not been altered following its completion.
MGVDKR	After an examination and comparison of the documents marked as "Q1a" and "Q1b", I reached the conclusion that no alterations took place to the questioned documents.
MTQHUD	THE QUESTIONED WAIVER WAS PROBABLY NOT ALTERED FOLLOWING ITS COMPLETION BY THE PARTICIPANT.
N6JKCC	Based on the aforementioned observations, I came to the conclusion that no signs of alterations could be found.
N9E88L	Item Q1 was examined microscopically, macroscopically and with various alternate light sources. There is no evidence that Item Q1 has been altered.
NCZYG3	In my opinion, the Q1 was not altered following its completion by the participant.
NHQBEK	All the finding during the examination of questioned waiver WAS NOT ALTERED following its completion by the participant. All pages of the document were produced simultaneously. Ininitial on page 1 written used the same pen with signature on page 2, that indicates that the document was not altered. the same ink of printers and pens were use to produce the race waiver. In additional, an examination of the impression evidence was conducted on the questioned documents using the ESDA-2, visible indented impression of handwriting and initial of Samantha Kitt were develop on both sides of every pages but no other impressions of evidentiary value were detected. An examination of the printing and handwriting ink was conducted on the questioned document using the VSC 6000. The printing and ink on page 1 and page 2 exhibited shown same optical characteristic on both pages.Base on the aforementioned observations, I came to the conclusions the questioned document Item Q1 are authentic.
NNRPTU	after the examination I came to the conclusion that the questioned waiver was probably not altered.
NQKFEL	I have observed no significant differences or inconsistencies in printed characters, ink, paper, alignment, and spacing within or between the two pages. Indentations of handwriting were observed on each page that are superimposable with the handwritten entries on the opposite page. No evidence of alteration to the two pages of the Q1 document, in particular paragraph 5, was observed. As a result of my examination, it is my opinion that the evidence supports the proposition that the document has not been altered, as opposed to the alternatives.
NTMCTA	Based upon the scenario provided, in conjunction with the observations from the techniques and instrumentation used in the analysis, there was no indication that Q1 was altered by interlineation or addition.
NVBQGJ	No conclusion could be reached regarding whether or not the Exhibit Q1 race waiver form was altered after having been filled out by the participant. While the text on page 2 beginning "Having read this waiver..." and concluding "...as outlined above" may have been inserted after the participant completed the form, the examination did not reveal evidence of it.
NWNKVY	The Questioned Waiver \$ Release of Liability declaration submitted, signed by Mrs Samantha Kilt, does not contain any inconsistency that permit to us to assess that it was fraudulent manipulated.
NYC28R	I reached the conclusion that there were no signs of alteration on the two-page waiver marked as "item Q1"
NYDRFV	According to the performed analysis and based on technical nature reasonings it is determined that: The questioned waiver WAS NOT ALTERED following its completion by the participant.
NZ7MXX	Based on the abovementioned observations I came to the conclusion that the questioned waiver was not altered following its completion by the participant.
P2UFBR	The questioned waiver was not altered following its completion by the participant

TABLE 3

WebCode	Conclusions
P2V9C7	No evidence are found that indicate the questioned waiver was altered following its completion by the participant.
P42TZ8	On further examination, I did not found any signs of alteration on the both pages of the waiver form. Hence, I am of the opinion that the questioned waiver was not altered following its completion by the participants.
P9PMM7	After the examination of the questioned waiver, the following observations were made: 1. Indentations of the written initials "SK" on page 1 of the questioned waiver appears on page 2 of the questioned waiver. 2. The information written on page 2 of the questioned waiver appears on page 1 of the questioned waiver (Indented writing) 3. The font,size,spacing of the words/letters on both pages are the same. In light of the above observations i reached a conclusion that the questioned waiver is not altered.
PNBQJ3	Based upon an extensive examination of the document submitted, it is my professional opinion the questioned waiver was not altered.
PNR3X2	In view of the foregoing, it is possible to conclude that the Document dubitado format exoneration agreement was NOT ALTERED after the participant's due diligence. So the answer is the "E".
PQUTJV	Based on the aforementioned observations, i came to the conclusion that the questioned waiver was not altered following its completion by the participant.
Q2DGYF	IT CAN NOT BE ESTABLISHED if the document dubitado format exemption agreement was altered or not after the participant's due diligence.
Q36KLV	Based on the aforementioned observations, I came o the conclusion that no signs of alterations could be found on the questioned document and that the race waiver has not been altered following its completion by the participant.
Q4YL8D	The questioned waiver was not altered following its completion by the participant.
Q7K8ZZ	Alterations were not detected on the Item 1 (Q1) document, however this conclusion does not preclude the possibility that the item was altered. The absence of a known standard for comparison as well as the possibility that other analytical techniques might be able to differentiate the item must be considered. Indented writing was observed during the examination of Item 1 (Q1) pages 1 and 2 and has been designated as secondary evidence Item 2. Two copies of the indented writing are enclosed for your investigative assistance.
QF7DTX	The questioned document marked "Q1" is not altered . My conclusion is based on the following observations: The font used on both pages of the questioned document is the same. The staple holes of the two pages of the questioned document match psychically. The same writing instrument was used on both pages of the questioned document. Indentation of the writing of the first page appeared on the second page of the questioned document.
QQCBK9	Based on review of the questioned document, I conclude that the questioned waiver probably was not altered following it's completion by the participant. Due to the assumption that the writing was actually written by the participant, the findings in this report are qualified. Comparison writing samples would need to be provided by the participant to determine if they were indeed the author of this document.
QUTJ7L	Based on visual and instrumental examinations of the two-page waiver submitted as Exhibit Q1, it was determined no characteristics of alteration were observed. This finding is based on the following observations: Indented impressions observed on page 1 were sourced to the handwriting on page 2, and indented impressions observed on page 2 were sourced to handwriting on page 1, demonstrating that the entries on these two pages were written while the pages were placed on top of each other. No differences were observed in the class characteristics of the paper used in page 1 and page 2 (e.g., optical properties, size, thickness). All handwritten entries were written using black ballpoint pen; no differences were observed in the class characteristics of the pen(s) used to write these entries (e.g., optical properties, color). The machine printed entries on pages 1 and 2 were produced using toner

TABLE 3

WebCode	Conclusions
	technology (e.g., laser computer printer, photocopier); no differences were observed in the optical properties of the toner printed entries. The toner printed entries were printed before the handwritten entries were written in bullets 1, 2 and 3 on page 1 and on the signature and race location lines on page 2. No differences were observed in regards to formatting for the bullets and the font on pages 1 and 2. Only one set of staple holes was observed on pages 1 and 2.
QWHPQJ	Based on the evidence received, it appears the questioned document, Q1, was not altered. As is routine in some cases, we processed the questioned documents for latent writing impressions. Latent writing impressions may be made when writing is performed on one sheet of paper and leaves indentations on the pages below. The ESDA sheet provides a restoration or partial restoration of the original writing which created the impressions. Latent writing impressions were developed on Q1.1 and Q1.2 front/back.
QWY4UM	During the completion of the waiver form the pages lay on top of each other. So when page 1 was filled in, page 2 was underneath page 1. When page 2 was filled in, page 1 was underneath page 2. ma. Kitt confirms that the handwriting and signature are genuine. No other indications are found that supports the hypothesis that the waiver was altered.
R2PVHA	Based on the observations made I concluded that the document displays no evidence of alterations.
R8VANK	In our opinions, the two-page waiver was not altered
R8XYQW	1. Laboratory item #1, Invoice #Q112008 was examined utilizing oblique/side lighting and ESDA (Electrostatic Detection Apparatus) for the possible presence of indented impressions. Multiple impressions were found. See pages 2-5 for interpretation. 2. Utilizing the VSC (Video Spectral Comparator) showed no differences in the inks examined. The inks could have originated from a common source or another source with similar characteristics. Another analytical technique may reveal differences. 3. Laboratory item #1, Invoice #Q112008 was not altered following its completion by the participant.
RCRVD3	Alterations were not detected on Item 1 (Q1), however, due to the lack of known standards and the possibility that other analytical techniques might be able to differentiate within the item, a definite conclusion could not be reached. Indented writing, designated as Item 2, was observed on Item 1 (Q1). Additional assessments and observations have been made regarding the submitted item and recorded for possible future examinations.
RKK7MX	I examined page 1 and page 2 of "Q1" and found that: i) No significant differences within the papers, inks of the handwritten entries and printing in "Q1" in terms of their appearance and optical properties. ii) The indented writing impression lifted from page 1 was identical to the handwriting of page 2 and the indented writing impression lifted from page 2 was identical to the handwriting of page 1. This indicated that the handwriting on page 1 was written on top of page 2 and the handwriting on page 2 was written on top of page 1. In view of the above findings, it was concluded that the questioned waiver "Q1" was not altered following its completion by the participant.
RKL2BA	The two page waiver display no signs of additions or alterations following its completion by the participant.
RKMxQK	In my opinion, the results of this examination very strongly support that the questioned waiver was not altered following its completion by the participant, rather than that the waiver was altered following its completion by the participant.
RMQqKH	The results of the examination extremely strongly support that the document was not altered after completion
RRXEXK	Visual and instrumental examinations were conducted on the two page document set to determine whether or not the document set had been altered. Examinations included use of a stereomicroscope, Electrostatic Detection Apparatus, Video Spectral Comparator 2000, various light sources, and electronic grids. The Item 1 document set was found to be comprised of two sheets of white paper

TABLE 3

WebCode	Conclusions
	bearing a form printed with toner, and with black ball point pen inked handwriting. There is a single staple in the upper left corner, and corresponding folds in both pages. It is the conclusion of this examiner that the document set probably was not altered. Findings include: 1. There are no line spacing abnormalities, nor margin placement abnormalities, on either page, or between the two pages. 2. There are no font inconsistencies. 3. The ink used for the handwritten information does not show inconsistencies between entries. 4. There are no inconsistencies in machine printing. 5. There are no fiber disturbances indicative of erasures. 6. The handwriting from page one is impressed onto page two, and the handwriting from page two is impressed onto page one 7. There is one staple present, and no additional staple holes in either page. 8. The date of April 1, 2017 is consistent on both pages, and the numbering sequence is consistent. It cannot be determined if there was a complete substitution of both pages of the document set, which is the only limiting factor in this type of examination. If a handwriting comparison becomes necessary, please submit known writing.
RVYLAW	Results of the investigation show that the form was completed while stapled, for both sides one sheet on the top of the other. Investigation showed no signs of alteration. Ms. Kitt stated that the handwriting is her. According to that our expert opinion is that the questioned waiver was not altered following its completion by the participant.
RWEMEJ	Upon completion of this examination, this examiner has concluded that the Q-1 exhibit was not altered. This conclusion was reached by using the above described instruments to illustrate the lack of differences/dissimilarities in the documents. The purported writer stated that the writing appeared to be genuine, and no standards were received for comparison of the handwriting. The initials that are observed on the first page are impressed into the second page, in the same location, which is illustrated with a transparency. The writing on the second page are impressed onto the front page, which when considered along with the creases of both pages; a conclusion can be made that the writer folded the first page underneath of the second page prior to completing the writing.
RYLZX7	Conclusions 1.- Exhibit Q1.- Two-page waiver for the 5K Sun & Fun race, signed under the name of the citizen Samantha Kitt. Issuing date: Saturday, April 1st, 2017: DO NOT SHOW ANY ALTERATION 2.- Page 1 and 2 of Exhibit Q1.- Two-page waiver for the 5K Sun & Fun race, signed under the name of the citizen Samantha Kitt. Issuing date: Saturday, April 1st, 2017: INDENTATIONS WERE DEVELOPED.
T64VCF	A microscopic and visual examination, with the aid of the ESDA and UV light of exhibits Q1-1 & Q1-2 have not disclosed any indications that Exhibit Q1 has been altered. The examination, however, of Exhibit Q1-2 has been restricted due to the lack of information on how the form was prepared. If a further examination is desired, the control samples of the form as issued to the participants will be required.
T7WN8Y	Due to the lack of comparable known or reference material and the possibility that other analytical techniques not performed in this Laboratory might be able to supply further technical information, a definitive determination could not be reached whether or not Item 1 (Q1) was altered. However, nothing was observed to indicate that Item 1 (Q1) was altered. Indented writing of unknown value designated Item 2 was observed during the examination of Item 1 (Q1) using the Electrostatic Detection Apparatus (ESDA). Two copies of the indented writing (Item 2 ESDA lifts) are enclosed. Additional observations and assessments have been made and recorded for possible future comparisons.
TAZG74	No evidence of significance was found to indicate that the questioned waiver (Exhibit Q1) was altered.
TCK7QG	There is no evidence to support the contention that the document (Item Q1) was altered.
TCMVUD	The Q1 document does not show any characteristics of traits found in altered or manipulated documents. The Q1 document was not found to have been altered after the participant completion, and this is based on the evidence I have been provided.
TXJUW3	The questioned waiver was not altered following its completion by the participant.
TY2JH4	The Q1 document don't present any alteration. The allegation by Samantha Kitt it without baseless.

TABLE 3

WebCode	Conclusions
UE86J6	The questioned waiver WAS NOT ALTERED following its completion by the participant
UTNZWG	There is a high probability that the Q1 document has not been altered. All non-destructive examinations showed no signs of an alteration. However, because no handwriting samples from Ms. Kitt were submitted for comparison to the writing on Q1, the possibility that someone simulated Ms. Kitt's writing cannot be ruled out. It is recommended that Ms. Kitt prepare the writing from Q1 on 20 to 25 blank waiver forms. Some course-of-business writing from Ms. Kitt should also be collected. This additional evidence should then be submitted for comparison.
V42KUH	With the Original Documents in my possession. It is determined The Questioned Waiver Was Not Altered following its completion by the participant.
V79Z39	(a). Examinations of Item Q1 and comparisons between paragraph 5 and the other paragraphs showed the following: i). A similar type of paper, printing method and page layout were used to produce pages 1 and 2 of Item Q1. ii). A same pen was used to write the signatures and handwriting. iii). The two pages were stapled together once. iv). Page 1 was underneath page 2 when handwriting and signature were written on page 2 and page 2 was underneath page 1 when handwriting and signature were written on page 1. (b). Based on the above findings, in my professional opinion, the examination of Item Q1 revealed no evidence of alteration. Therefore the questioned waiver WAS NOT ALTERED following its completion by the participant.
V8HATK	<p>Preservation of Handwriting: The handwriting on the two-page document in Item Q1 was preserved through images. The handwriting was then assessed and deemed suitable for comparison to known writing, if submitted in an effort to determine authorship. If a handwriting comparison is deemed necessary, request and non-request known writing of Samantha Kitt and other subject(s) of interests in this investigation should be submitted along with Item Q1 to the laboratory for comparison. Contact the Forensic Document Unit for assistance prior to collecting known writing. Indented Impression Examination: The two-page document in Item Q1 was examined for the presence of indented impressions. These, generally, are impressions left on a document which has been in contact with another document during the writing process. Indented impressions are subject to more than one interpretation when deciphered. The four EDD lifts, uniquely identified as Q1A1 – Q1A4, that were produced during the indented impression examination of this two-page document may be viewed in Item Q1A. Indented impressions of the writing on Page 2 in Item Q1 developed on lift Q1A1 in Item Q1A, which was from the front of Page 1 in Item Q1. Indented impressions of the writing on Page 1 in Item Q1 developed on lift Q1A3 in Item Q1A, which was from the front of Page 2 in Item Q1. This means that Page 1 and Page 2 in Item Q1 were in contact during the writing process of both pages. For clarification, Page 1 in Item Q1 contained the image of the sun, and Page 2 in Item Q1 contained the signature section. No other unsourced, decipherable indented impressions developed on the four lifts in Item Q1A, which were from the front and reverse of the two-page document in Item Q1. Ink Examination: Using the macroscopic and microscopic non-destructive examinations available within the Forensic Document Unit, no differences were observed among the inks on Page 1 in Item Q1. Using the macroscopic and microscopic non-destructive examinations available within the Forensic Document Unit, no differences were observed among the inks on Page 2 in Item Q1. The Forensic Document Unit only conducts non-destructive ink examinations. If chemical analysis is requested of the inks, the evidence may be sent to a laboratory that conducts destructive ink examinations. Paper Examination: The Page 1 and Page 2 paper in Item Q1 were compared to one another to determine whether or not these two pieces of paper were from a common source. The pages were examined macroscopically, microscopically, and with an alternate light source. Page 1 and Page 2 in Item Q1 were consistent in class characteristics, such as the color; physical dimensions; the lack of a watermark; the presence of optical brightener; and similar paper fiber distribution. However, there were no individualizing characteristics present. Therefore, it could not be determined whether or not these two pieces of paper were from a common manufacturing source. Additional Examinations for Alterations: In addition to the results above, the printed material on the two-page document in Item Q1 was generated with toner technology. The font on the two-page document in Item Q1 most closely corresponded to the font standard for Calibri, a san serif font, but may also be similar to other fonts. There was one staple present</p>

TABLE 3

WebCode	Conclusions
	attaching Page 1 to Page 2 in Item Q1. No other staples holes were present on either page. The fold placement and length in the upper left corner on Page 1 and Page 2 in Item Q1 was also similar. Based on the non-destructive macroscopic and microscopic examinations performed, there is no evidence to suggest that the two-page document in Item Q1 was altered. However, it is recommended that both request and non-request known waivers similar to Item Q1 be submitted to the laboratory for comparison.
V9TTXN	The questioned paper was not altered following its completion by the known participant.
VAA6FU	On examination of the two page waiver for the Sun and Fun 5K race no evidence was found of alteration or page substitution. The evidence from the indented writing examination establishes that the pages were written out one on top of the other. The evidence from the handwriting examination supports the proposition that both pages were written out by Samantha Kitt. In my opinion the waiver for the Sun and Fun 5K has not been altered following its completion by the participant.
VAULWV	A definite determination could not be reached whether Item 1 (Q1) was not altered due to the lack of known standards and the possibility that other analytical techniques may differentiate entries in the item. However, from the non-destructive techniques which were used, alterations were not detected on Item 1 (Q1). Indented writing was observed on pages 1 and 2 of Item 1 (Q1) which could be attributed back to writing from Item 1 (Q1). Copies of the Electrostatic Detection Apparatus (ESDA) lifts, used to visualize and retain the indented writing (and designated Item 2), are included for your investigative assistance. Additional assessments and observations have been recorded.
VBGG7G	No evidence was found to support the conclusion that the 2-page race waiver form was altered. Therefore, the 2-page race waiver was probably not altered.
VE46UP	The questioned waiver WAS NOT ALTERED following its completion by the participant.
VLM3P4	The document Q1 was not altered because: grooves were revealed on the two sheets with the following legends: Sheet one, is detected: SK, Samantha Kitt, 4/1/17, Samth Kitt, Richmon, VA, Skitt@aol.com, 202-555-6994. Sheet two, the legend is detected: SK on six occasions. Corresponding in its correct location and spaces. Does not present addition or suppression in its full
VTLUTR	Claim of alteration of Q-1 could not be supported.
W2ULXF	An examination was performed on Q1 (2 pages) of a "Waiver & Release of Liability, Release of Likeness" form with the heading of "The 2017 Sun & Fun 5K". This 2 page form consisted of seven (7) paragraphs with the handwritten initials of "SK" following each statement. Page 2 also has the handwritten personal information of a "Samantha Kitt". Item Q1 (2 pages) was found to be consistent with respect to being an original 2 page document. As a conclusion to examining this original document, there appears to be no alterations or changes on document Q1 (2 pages) in any way.
WGNDGV	A definite determination could not be reached regarding whether Item 1 (Item Q1) was or was not altered, due to the lack of a known document. However, alterations were not detected on the submitted Item 1 (Item Q1) document. It should be noted that internal consistency of the Item 1 (Item Q1) document was examined. If additional examinations are requested between the Item 1 (Item Q1) document and an undisputed reference document, the reference document should be submitted, in addition to the original Item 1 (Item Q1), to this Laboratory. Indented writing of unknown value was observed on Item 1 (Item Q1) utilizing the Electrostatic Detection Apparatus (ESDA). Copies of the indented writing, which is considered secondary evidence and given designation Item 2, are enclosed for your investigative assistance. Additional observations and assessments have been made regarding the submitted item and recorded for possible future examinations.
WPHFUD	The findings very strongly support the proposition that the questioned waiver was not altered.
X32HHB	Based on expertise results i come to conclusion that questioned document of Item Q1 has not modificatin/alteration.

TABLE 3

WebCode	Conclusions
X32KEE	The questioned waiver was not altered following its completion by the participant.
XDXPEU	1.- The questioned document "Q1" does not present signs of manipulation or alteration. 2.- From different frequencies, all the inks react equally.
XEGDXA	Non-destructive examinations of the paper, paper folds, staple, inks, printing processes, print font style and sizes, revealed no evidence of alterations occurred on pages 1 and 2 of Q1. Indentations observed via ESDA processing confirm that page 1 was above page 2 when writings on page 1 were written; and that page 2 was above page 1 when handwriting entries were made on page 2. Non-destructive visual and hyperspectral examinations revealed no differences between ink entries within page 1, or any differences between ink entries within page 2. More definitive findings may result with further examinations involving (1) destructive ink formula analysis of the handwriting inks of Q1 pages, and (2) by handwriting comparison examination of Q1 writings with known samples by the participant contesting the genuineness of Q1.
XG7KH7	Based on the foregoing testing, it is my opinion that the Waiver and Release of Liability, Release of Likeness document is a genuine document filled out, initialed, and signed by the same person. There was no evidence of alterations. A series of tests all provided evidence that the document was not altered. The results of the indented writing tests confirmed that the six sets of initials on page 1 all indented onto page 2 at approximately the same positions as on page 1.
XHC7PJ	After an examination and comparison of the documents marked as "Q1(a)" and "Q1(b)" I reached a conclusion that no alterations took place to the questioned waiver.
XQAUPW	There is no evidence that paragraph five (5) "For participants..." of the Q-1 Agreement was altered following its completion by the participant. There is no evidence that any of the portions of the Q-1 Agreement were altered following its completion by the participant.
XV3U4R	There were no inconsistencies with respect to the printing process on either page, the font type or size, staple holes or the paper brightness between the pages. There was no evidence of erasures, insertions or a page substitution. As a result of the examination, it was concluded the questioned waiver was not altered.
XVWNHM	In conclusion, no alterations were identified on the document.
XXLTJ	After examination I reached the following conclusion: There are no signs of: Crowded or awkward placements of printed text, paper fibre disturbance, different fonts, sizes and/or styles, uneven margins, different printing processes, irregular spacing and alignment, both vertical and horizontal, unusual sequence of line intersections, composite of the paper uv/infrared are the same, paper size the same, additional staple marks. The questioned waiver (marked Item Q1) was not altered following its completion by the participant.
XXTXWY	The questioned document was not altered.
XZXMY8	The document "LEGAL LIABILITY EXEMPTION AGREEMENT FORM of the" SUN AND FUN 5K "signed by Mrs. SAMNATHA KITT, was not altered.
YH86JC	Item 1 (Q 1) was probably not altered following its completion by the participant. Various forensic questioned document examinations were conducted and there is no evidence to indicate that the Item 1 (Q 1) document has been altered in any manner. Item 1 (Q 1) was examined for indented impressions. Indented impressions from the second page (Item 1.2) were found on the first page (Item 1.1). Indented impressions from the first page (Item 1.1) were found on the second page (Item 1.2). A non-destructive ink examination was conducted on Item 1 (Q 1) and it revealed no visible differences in any of the inked entries appearing on the documents.
YLBZ6Z	The questioned waiver WAS NOT ALTERED following its completion by the participant.

TABLE 3

WebCode	Conclusions
YPQ8QE	On examination of both pages of the waiver, no indications were found that any alterations were done to them, including to paragraph 5 that includes the warning about "exposure to native poisonous plants". In all the printing of paragraphs 1-7, no significant differences were found in the fonts, the horizontal and vertical spacing of the printing, the positioning of the margins and in the printing characteristics (magnetic content and toner-scattering); furthermore, under optical examination, no difference was found between the ink in all the handwriting on both pages of the waiver. The two pages were received stapled together and no indications were found that the staple had been opened or exchanged at any stage.
YRXN2Q	1. The questioned two-page waiver for the Sun and Fun 5K race are not altered. 2. It is concluded that manuscripts visible in the pages were made by the same person.
YYVF8Y	The questioned wavier was probably not altered following its completion by the participant.
ZB78BY	No differences has been found between papers & printing sources used in both pages of the document "the 2017 Sun & Funa 5K"
ZFXGGR	Nothing was observed to indicate the Item 1 (CTS Item Q1) document was altered due to the lack of observed additions or deletions. This conclusion does not preclude the possibility that the item was altered, as the possibility that other analytical techniques might be applied to detect alterations not readily observed by traditional questioned document examinations must be considered. It should be noted that the indented writing detected on page 1 of Item 1 (CTS Item Q1) corresponds to the actual writing on page 2 of Item 1 (CTS Item Q1) and the indented writing detected on page 2 of Item 1 (CTS Item Q1) corresponds to the actual writing on page 1 of Item 1 (CTS Item Q1). Additional assessments and observations have been made regarding Item 1 (CTS Item Q1) and recorded for possible future examinations.
ZFFZ9JD	The submitted two-page document was examined visually, microscopically, with the aid of a Video Spectral Comparator, and with the aid of custom typography grids. No evidence was observed to suggest that the document was altered after it was completed.
ZKT9QA	There is no evidence to indicate the questioned waiver was altered after completion by the participant. Examination with the Electrostatic Detection Apparatus (ESDA) for writing impressions reveals that the initials on page 1 were written while page 1 was on top of page 2. Likewise, the handwriting on page 2 was written while page 2 was on top of page 1. Nothing unusual involving line spacing, font size and type, printing process, writing instrument used, handwriting, staple holes, or horizontal spacing were detected.
ZQXAR4	Detailed examination of the questioned waiver has revealed no evidence that it was altered following its completion by the participant and I consider that it is almost certain that it was not.
ZRD8LN	The waiver form doesn't contain any fraudulent trace.
ZT82ZJ	Taking in consideration the fact that the document was stapled together when th ewaiver was completed by the participant (which is not in dispute), the evidence support the proposition that the questioned waiver WAS NOT ALTERED following its completion by the participant.
ZUKNMD	The questioned document does not bear evidence of alterations. The following evidence supports an unaltered document: Writing impressions on page one were recovered; the source writing is from the handwriting on page two. Writing impressions on page two were recovered; the source writing is from the handwriting on page one. The font in the paragraphs of pages one and two are in agreement. The format, spacing, and alignment of the paragraphs are in agreement on both pages. Toner printing process was utilized on both pages. The writing ink does not exhibit optical ink differences on either of the pages.
ZXH9KW	The questioned waiver WAS NOT ALTERED following its completion by the participant.

Additional Comments

TABLE 4

WebCode	Additional Comments
29JTMP	I do not know if the 2 page document was presented to the participant as a stapled document or as two separate pages. If it was presented as two separate sheets it may have been possible to substitute the first page with a differently worded 5th paragraph, but that would have required copying of the initials, which are accepted writing.
2JWAUM	We have no conclusion terminology in our quality system for this type of problem.
37NRVR	An examination of Exhibit Q1 utilizing the Electrostatic Detection Apparatus (ESDA) revealed the presence of indentations. In accordance with laboratory policy, images depicting positive results are treated as derived evidence. The laboratory will maintain and store this derived evidence in accordance with its established policy.
38GJYB	EXAMINER'S NOTES: The results are opinions and interpretations formed using accepted scientific and professional practices. No known specimens were submitted for comparison. Therefore, the business and printing practices of the Sun & Fun 5K organization are unknown. This fact precludes a definitive conclusion. Submission of a sufficient quantity of known specimen forms may result in a more definitive conclusion.
3BHQ7G	It is striking that the style of writing in the signature of Mrs. Samantha Kitt on page 2 differs from the style of writing in the manuscripts embodied in the very same document.
427REQ	The fold creases corresponded with page 2 being folded into page 1 during execution of writing.
4AH7Q7	If this were an actual case a request would be made to examine several other liability forms of other participants in the race. A show of consistency amongst the other participant forms would significantly hinder the claim that one of the forms was altered.
4JRG9J	Since the scenario of this test leaves some relevant questions unanswered we would take additional steps in a real case scenario: - Examination of Ms. Kitts handwritten entries (including signature and initials) by our handwriting experts (she would have to provide samples) in order to verify Ms. Kitts statement that her handwriting appears genuine - Ask the race-committee to hand over all original race waivers (reference material) - Gathering information if the two-page race waiver was stapled at the time of the completion (task for the detectives) Based on our examination we conclude that the questioned waiver was not altered (answer E). BUT in lack of the information if the form was stapled at the time of completion we cannot determine whether or not the questioned waiver was altered (answer C).
7RW7ZM	Additional assessments and observations have been made regarding the submitted items and recorded for possible future comparisons.
8K6D6Y	Examination revealed that the texts on both pages of the document is done by laser printer using the same font. Also the written texts signature and initials on both pages is done by ball point pen. After the examination by microscope and equipment "VSC6000/HS", infrared and ultraviolet rays "COAX" and polarized rays no differences were revealed. Therefore stating whether the first page of the document has been changed or altered is not possible.
9VJUBB	Written forms and constituent document Q1 manuals and specially the point "5" setting forth the writings "...exposure to native poisonous plants...", exhibited similar characteristics of printing and inking, without evidence changes that demonstrate the existence of an alteration for a supposed addition.
AK6UHN	The above conclusion was made using assumptions based on the information provided. Ms. Kitt's confirmation of the handwriting and signature as genuine, Waiver document production and preparation followed "normal" practices, The term "alteration" does not include total document fabrication.
AM8X4J	The submission of known writing in the form of exact-text exemplars and/or normal-course-of-business writings containing similar words, letters, and numbers to those in question may provide the basis for additional conclusion. All submitted exhibits will be returned.
AQ4LH6	The infra-red (IR) wave length on the ink and toner on paragraph 5 correspond with the rest of the

TABLE 4

WebCode	Additional Comments
	document
E7A8DQ	The absence of features and characteristics frequently observed in altered documents does not imply with certainty that Q1-1 and Q1-2 were prepared in close time proximity to each other. While there is no physical evidence to indicate (chronologically) when the documents were prepared (seconds, minutes, hours or even days apart); the remote possibility that the documents were prepared at much different times has to be considered and was a factor in the arriving at the less than definitive conclusion provided.
EPV6B9	5.Both "Q1a" and "Q1b" are UV bright. Pen inks used to write on both "Q1a" and "Q1b" do no fluoresce under UV light.
F3439U	Detailed comparative examinations could be undertaken of the initials, signature and handwriting on Q1 with specimens of SK with a view to possibly addressing the genuineness or otherwise of the initials, signature and/or handwritten entries. Comparisons could also be undertaken of the printed content and style of the document with such features of forms completed by other participants in the event. Computer forensic examinations could also be considered.
FEC2MA	There are procedural ways to verify the document during an investigation or court - The questioned waiver should be compared with Waivers completed by other participants.
HKEWHU	Please note that the "scenario" states that "Ms. Kitt confirms that the handwriting and signature appear genuine.", thus there is no need for a handwriting comparison between the known writing of Ms. Kitt and the handwritten entries on item Q1a and Q1b.
HUX9T7	A definitive opinion has not been possible, as the absence of evidence of an alteration is not the same as evidence that alteration has not occurred. However, while there is the possibility that the questioned waiver could have been altered without there being any evidence left of that alteration, the indentation evidence makes this less likely.
JCYBBB	Given that the "Waiver" form is a generic form used by all of the participants, we would have contacted the investigating officer requesting other completed forms for detailed comparison purposes.
JWGK83	For examining the question about the participant's authorship a Forensic Examination of the handwritings should be suggested.
LF98V3	It is unclear from the description which entry is alleged to have been altered/added – the section dealing with poisonous plants or the Waiver. Had this been a real case I would have sought clarification of this. As this appears to be a general form of Waiver used for an event, I would also have requested Waivers from other participants to see what format they took.
LWVNWE	Exhibit Q1 (1-2) was digitally scanned and the images will be retained.
MDHPXM	No handwriting specimens were submitted for comparison. It is not possible to determine if the handwriting is genuine or if someone other than the participant completed the form. Additionally the handwritten entries on page 1 consist of only initials. The possibility that these entries are by a different writer to that of page 2 cannot be excluded. It was noted that the test scenario indicates that the handwritten entries are not in question.
MTQHUD	SIMILARLY, I WANT TO STATE THAT UPON EXAMINATION OF THE WRITTING USED TO PREPARE THE PRINTED FORM, IN PAGE 1), SPECIFICALLY IN THE FIRST LINE OF PARAGRAPH S), I NOTICED THAT THE WORD "PASS", THE SECOND LETTER "S" AS WELL AS THE SIGN OF ARROW AND ") ARE OUT OF THE VERTICAL ALIGNMENT AS COMPARED TO THE LAST LETTER IN THE REMAINING LINES OF PARAGRAPHS "1" TO "6"; THIS FEATURE OF VERTICAL MISALIGNMENT IS OBSERVED AND MENTIONED EVEN WHEN THE RIGHT MARGIN IS NOT JUSTIFIED.
N9E88L	Item Q1 was examined for indented writing impressions. Indentations of the original hand printing appearing on page 1 were observed on page 2. Indentations of the original hand printing and signature appearing on page 2 were observed on page 1. No other indentations of evidentiary value were observed.

TABLE 4

WebCode	Additional Comments
NQKFEL	The propositions I have considered are as follows: (i) The Q1 document is the original waiver and it is unaltered; (ii) The Q1 document is the original waiver and the paragraph in question has been added/alterd; and (iii) The Q1 document has been altered by substitution of page 1. NB. These propositions are based on the proviso that the handwriting and signatures on page 2 are genuine, and for this exercise, a fourth proposition that the entire document is fraudulent has not been considered as handwriting/signature examination has not been conducted. Based on the indentations observed, it is unlikely that page 1 has been substituted.
NVBQGJ	The indentation analysis did not produce evidence of paper handling mechanisms on exhibit Q1. Accordingly, a conclusion as to whether or not pages 1 and 2 had been sent through different machines could not be made.
Q2DGYF	Although the document presents printed texts in different sizes, there is no authentic standard format for comparing font size and class. On the other hand, in our laboratory procedures, we do not perform technical analysis based on the variable "time" or "antiquity", so I do not issue a concept about it. In addition, in the [Country] courts, judges do not authorize the assignment of parts of a document to establish seniority between their forms and manuscripts because it is considered that the evidence must remain unaltered during forensic laboratory analyzes.
QWHPQJ	Since the questioned document contains handwriting, any known writing from the subject can be submitted for comparison. Exemplars can be created upon request.
R8XYQW	1. Evidence listed on Invoice #Q112008 will be forwarded to the Evidence Control Desk for storage.
RKMXQK	Based on the examination requested the following two propositions were considered during comparison: Proposition 1: The questioned waiver was altered following its completion by the participant. Proposition 2: The questioned waiver was not altered following its completion by the participant. The observation that the indented impressions on each page of Q1 correspond with the handwritten entries on the other page of Q1, as well as the observations of similar format, layout, toner appearance including micro toner spatter, ink characteristics and gross paper features between the two pages fit well with the proposition that the waiver Q1 was not altered following its completion by the participant. In my opinion, there is only an extremely small chance of observing corresponding indented impressions of handwriting if an alteration was made to the waiver (e.g. to the printed text on either page, or a page substitution), particularly given the format of the document with initials at the end of each paragraph.
RYLZX7	Additional Remarks: Exhibit Q1: after developing the indentations of the rear and front page, at least in theory, it could be observed that the document wasn't stapled during its competition, as there is no bend or perforations in the upper corner. So, during its competition one page was on top of the other, reason why the indented writing is the same in the opposite page. However, and as it was mentioned in the previous conclusions, this doesn't mean there is any type of alteration.
T64VCF	Though the evidence indicates that the form was likely stapled together at the time of completion, it needs to be known conclusively to eliminate the possibility that the separate pages could be re-fed into a printer and material added.
UE86J6	Ms. Kitt read, accepted the waiver's terms and completed it; as a result some grooves appeared on the 2 sheets document.
V8HATK	Images of Item Q1 are being retained by the Forensic Document Unit. The EDD lifts in Items Q1A and Q2A are considered secondary evidence and will be retained by the Forensic Document Unit for future reference.
XDXPEU	The text and the anagram are made by means of a printer laser. The annotations "SK" and information of filiation are original manuscripts.
XEGDXA	More definitive findings may result with further examinations involving (1) destructive ink formula analysis of the handwriting inks of Q1 pages, and (2) by handwriting comparison examination of Q1 writings with known samples by the participant contesting the genuineness of Q1.
XG7KH7	If this was a real examination, I would include the images from the different equipment and a scan of the

TABLE 4

WebCode	Additional Comments
	ESDA results.
XVXL TJ	The conclusion was reached by using methods of examination which requires proficiency in the examination of disputed documents and the following instruments and techniques were used Magnification device sufficient to allow fine detail to be distinguished, such as but not limited to a Portable and Stereo Microscope, the Video Spectral Comparator (VSC) or Docucentre Nirvis. A system or device with an appropriate light sources and filters for the use in Infrared (IR) and Infrared (IR) luminescence examinations, such as but not limited to Video Spectral Comparator (VSC) or Docucentre Nirvis. A system or device with an appropriate Ultraviolet (UV) lamps and viewing boxes with both long and short wavelength lamps, such as but not limited to Video Spectral Comparator (VSC) or Docucentre Nirvis. Electrostatic Detection device, such as but not limited to the ESDA. Imaging or other equipment for recording of images. Other equipment and techniques as appropriate.
YH86 JC	Handwriting standards from Samantha Kitt to include the "SK" initials and all the entries on Item 1.2 (page 2) may provide a more definitive finding.
ZT82 ZJ	Should the writing on the waiver become disputed, specimen writing need to be obtained to determine whether or not it was written by the participant.
ZXH9 KW	Consideration of the various features of the document were undertaken in order to assess the following pair of hypotheses: i. The questioned waiver WAS ALTERED following its completion by the participant. ii. The questioned waiver WAS NOT ALTERED following its completion by the participant. The features present on the both pages of the document were assessed and several consistencies were observed in conjunction with no inconsistencies that were not able to be explained. Accordingly this evidence provides extremely strong support for hypothesis. ii) that the questioned waiver WAS NOT ALTERED following its completion by the participant rather than the alternative hypothesis i) above. The above propositions were considered given the current evidence. Should more specimens of a comparable nature become available another examination could be completed. Should different propositions be considered, the conclusions provided could be subject to change.

Appendix: Data Sheet

Collaborative Testing Services ~ Forensic Testing Program

Test No. 17-521: Questioned Documents Examination

DATA MUST BE RECEIVED BY June 05, 2017 TO BE INCLUDED IN THE REPORT

Participant Code:

WebCode:

Accreditation Release Statement

CTS submits external proficiency test data directly to ASCLD/LAB, ANAB, and A2LA. Please select one of the following statements to ensure your data is handled appropriately.

- This participant's data is intended for submission to ASCLD/LAB, ANAB, and/or A2LA. (Accreditation Release section on the last page must be completed and submitted.)
- This participant's data is NOT intended for submission to ASCLD/LAB, ANAB, or A2LA.

Scenario:

A participant in a local 5K race is claiming that the waiver form she completed on the morning of the event has been subsequently altered to release the race organization from liability. During the race, Samantha Kitt states that she was unknowingly exposed to poison sumac plants, to which she is highly allergic and suffered a severe reaction that required medical attention after the event. Ms. Kitt states that the form did not mention poisonous plant exposure as a possible risk, and now would like to seek compensation from the race organization for her off-site medical costs. When requested, race organizers provided the original signed waiver, which addresses the issue in question. Ms. Kitt confirms that the handwriting and signature appear genuine. Please examine the two-page race waiver for any signs of alteration following its completion by the participant.

Please follow your laboratory's standard protocol for examining questioned document evidence.

Items Submitted (Sample Pack QD):

Q1: Two-page waiver for the Sun and Fun 5K race.

Please note: A label with the corresponding item number has been affixed to the upper right-hand corner of the item and is not to be considered for analysis.

1.) Based on the findings of your examination, can it be confirmed that the race waiver was altered following its completion by the participant?

(Select from the following list of conclusions and insert the appropriate letter in the spaces provided. If the wording below differs from the normal wording of your conclusions, adapt these conclusions as best you can and use your preferred wording for question 3.)

- A. The questioned waiver WAS ALTERED following its completion by the participant.
- B. The questioned waiver WAS PROBABLY ALTERED following its completion by the participant.
- C. CANNOT DETERMINE whether or not the questioned waiver was altered following its completion by the participant.
- D. The questioned waiver WAS PROBABLY NOT ALTERED following its completion by the participant.
- E. The questioned waiver WAS NOT ALTERED following its completion by the participant.

**Should the response "C" be used, please document the reason in the Additional Comments section of this data sheet.*

Q1: _____

Please return all pages of this data sheet.

Page 1 of 4

Participant Code:

WebCode:

2.) Methods and techniques utilized.

(e.g., microscopic/macrosopic, comparison techniques, instrumental analysis (type), Indented writing (electrostatic, oblique, other), ink examination (chemical, visual, ultraviolet, infrared), etc.)

Please briefly indicate the observations made from each method/technique utilized.

Please note: The list of methods/techniques provided to the left is not an all inclusive list and should not be used to determine what methods/techniques should be performed. Methods/techniques not on this list may be utilized.

<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>

If additional space is needed, copy this page or attach your own form following this layout.

Participant Code:

WebCode:

3.) What would be the wording of the Conclusions in your report?

4.) Additional Comments

<p>Return Instructions: Data must be received via online data entry, fax (please include a cover sheet), or mail by <i>June 05, 2017</i> to be included in the report. Emailed data sheets are not accepted.</p>	<p>Participant Code:</p> <p>ONLINE DATA ENTRY: www.cts-portal.com</p> <p>FAX: +1-571-434-1937</p> <p>MAIL: Collaborative Testing Services, Inc. P.O. Box 650820 Sterling, VA 20165-0820 USA</p>
<p>QUESTIONS? TEL: +1-571-434-1925 (8 am - 4:30 pm EST) EMAIL: forensics@cts-interlab.com www.ctsforensics.com</p>	

Please return all pages of this data sheet.

Collaborative Testing Services ~ Forensic Testing Program

RELEASE OF DATA TO ACCREDITATION BODIES

The following Accreditation Releases will apply only to:

Participant Code:

WebCode:

for Test No. **17-521: Questioned Documents Examination**

This release page must be completed and received by **June 5, 2017** to have this participant's submitted data included in the reports forwarded to the respective Accreditation Bodies.

Have the laboratory's designated individual complete the following steps **only if your laboratory is accredited in this testing/calibration discipline** by one or more of the following Accreditation Bodies.

Step 1: Provide the applicable Accreditation Certificate Number(s) for your laboratory

ASCLD/LAB Certificate No. _____

ANAB Certificate No. _____

A2LA Certificate No. _____

Step 2: Complete the Laboratory Identifying Information in its entirety

Signature and Title _____

Laboratory Name _____

Location (City/State) _____

Return Instructions**Accreditation Release**

Please submit the completed Accreditation Release at the same time as your full data sheet. See Data Sheet Return Instructions on the previous page.

*Questions? Contact us 8 am-4:30 pm EST
Telephone: +1-571-434-1925
email: forensics@cts-interlab.com*

Please return all pages of this data sheet.

Page 4 of 4