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Analysis of Obama Birth Certificate PDF

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Contents

Introduction

The purpose of this report is to examine the PDF document published on www.whitehouse.com that is stated to represent a valid copy of Obama's birth certificate and determine if the PDF does in fact represent a valid copy.

In this report I will describe the following:

1. How the paper copy (green copy) of the birth certificate was produced by the Hawaii Department of Health.
2. Review the internal data in the PDF document (the 'Meta' data) that appears on www.whitehouse.com, and to identify the source of the PDF, how it was produced, and when.
3. Identify any anomalies that appear in the PDF document and, if possible, why they appear.

In summary, my analysis indicates that there were modifications made to the PDF, and that the PDF contains, at minimum, slight alterations to the original scanned document. I have identified anomalies in the document in two general areas:

a. The PDF contains multiple 'layers', which is not consistent with a simple scanned document.
b. Most of the text in the document is surrounded by a white border which would not have been part of the Green copy produced by Hawaii.

Qualifications

Ivan Zatkovich has 28 years experience in computer science, ecommerce, internet publishing and document management. Mr. Zatkovich is the principal consultant with eComp Consultants, a technology consulting firm specializing in intellectual property for telecommunications, web publishing, and eCommerce. He has provided eCommerce and web publishing consulting services for corporations such as McGraw-Hill, Houghton-Mifflin, Citicorp, GEICO, and Amazon.com. He is also an industry speaker for online publishing standards and web content management. Mr. Zatkovich has over 10 years experience as an expert witness providing testimony in Federal Court for criminal and civil litigation involving document validity as well as patent infringement, and software disputes in eCommerce, web publishing, and internet copyright cases.

How Hawaii produces the "Green copy" of a Birth Certificate

A representative of the Hawaii Department of Health described how the copy of the Obama Birth Certificate was produced. She stated that the copy of Obama's birth certificate was produced by taking the original paper birth certificate, which was black printing on white paper. The original is then placed on the photocopy machine and that image is copied onto green 'safety paper'. That green copy is then stamped, dated and signed by the State Registrar.

That Hawaii Department of Health stated that they had nothing to do with producing the PDF, and directed me to the White House for all such questions.

The general appearance of the PDF document that on the www.whitehouse.com website is consistent with copies of birth certificates that are issued by the State of Hawaii. The form, the information within the form, and at least one signature is consistent with other Birth Certificates of that time period.
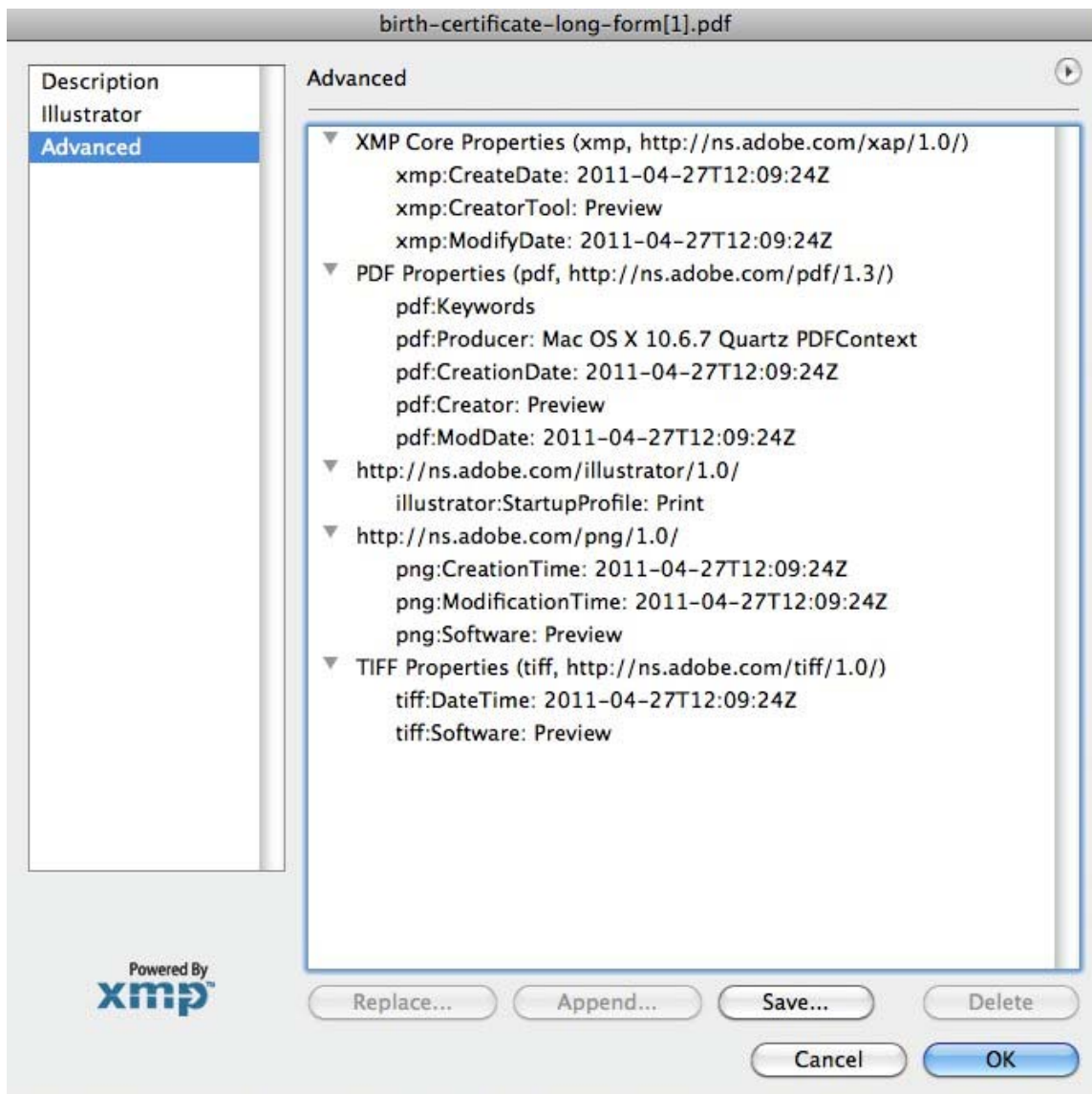

Internal PDF Meta Data

Document creator and content versions

Using the Examine Document function of Adobe Acrobat Pro version 9.0.0, the date and time of creation were determined to be April 27, 2011 at 12:09:24 pm. The software application that created the PDF document is *Preview*, a graphics and PDF utility included with the Mac OS X operating system. The version of Preview used is included with Mac OS X 10.6.7. It is possible that the document was created by some other application at an earlier date and then opened and saved from Preview causing new meta data to be stored in the document. The probability of this is at best 50/50.

The PDF content version is 1.3 and was created by the Quartz PDFContext engine that is part of Mac OS X version 10.6.7.

```
                          birth-certificate-long-form[1].pdf

  Description            Advanced                                              ⊙
  Illustrator
  Advanced              ▼  XMP Core Properties (xmp, http://ns.adobe.com/xap/1.0/)
                              xmp:CreateDate: 2011-04-27T12:09:24Z
                              xmp:CreatorTool: Preview
                              xmp:ModifyDate: 2011-04-27T12:09:24Z
                        ▼  PDF Properties (pdf, http://ns.adobe.com/pdf/1.3/)
                              pdf:Keywords
                              pdf:Producer: Mac OS X 10.6.7 Quartz PDFContext
                              pdf:CreationDate: 2011-04-27T12:09:24Z
                              pdf:Creator: Preview
                              pdf:ModDate: 2011-04-27T12:09:24Z
                        ▼  http://ns.adobe.com/illustrator/1.0/
                              illustrator:StartupProfile: Print
                        ▼  http://ns.adobe.com/png/1.0/
                              png:CreationTime: 2011-04-27T12:09:24Z
                              png:ModificationTime: 2011-04-27T12:09:24Z
                              png:Software: Preview
                        ▼  TIFF Properties (tiff, http://ns.adobe.com/tiff/1.0/)
                              tiff:DateTime: 2011-04-27T12:09:24Z
                              tiff:Software: Preview


          Powered By
          xmp
                          ( Replace... )  ( Append... )  ( Save... )  ( Delete )

                                                   ( Cancel )  ( OK )
```

Conclusion: The origin and content of the PDF document should be traceable back to the software tools and procedures used by the originator. If someone in the White House created the document, they used a Macintosh computer to produce this document, as is indicated in the document, and that computer is expected to be running Mac OS X 10.6.7.

Furthermore, much discussion is circulating the web about using Adobe Illustrator to open the documents and see the layers. While using Illustrator to view certain aspects of the document may be useful, the document and its contents must be understood in the context in which they were created, i.e., on a Mac with Apple's Preview application. Other tools may provide additional information such as meta data described above, but an accurate analysis of the document must consider how it was created and how the layers continued to exist in the file. It was not because of Adobe Illustrator. A number of tools could have been used preceding the final assembly occurring in Preview.

Content Elements

The meta data indicates that some parts of the file are TIFF images and some parts of the file are PNG images.

Conclusion: These are two common file formats. TIFF images are usually produced by scanning software used with scanner devices. PNG is a newer format used by graphics programs that store in graphics data a more efficient format producing smaller files than TIFF files. The two image types appearing in the meta data is consistent with the fact that the PDF document contains layers where small chunks of image are overlaid on the larger background image containing the form and security paper background. What caused those layers to exist is unknown. One commenter at a prominent website said that the layers were caused by "optimizing the PDF." I know of no PDF optimization process that creates layers in the output PDF file.

File created in a single session

Based upon the meta data, the file was created and not subsequently modified.

Conclusion: Because the internal creation and modification dates are the same, it can be concluded that the file was created in one session, not created and then modified with the overlays at a later time. This does not preclude the possibility that the scanning and overlays were prepared separately and merged together in this single session.

User meta data missing

Note from the screen capture below that none of the user meta data has been filled out such as the Document Title, Author, etc.

Conclusion: This is consistent with saving a PDF document from Preview, since Preview does not normally display a dialog for editing the user meta data.

birth-certificate-long-form[1].pdf

Description	Description
Illustrator	
Advanced	

Document Title:

Author:

Author Title:

Description:

Description Writer:

Keywords:

! Commas can be used to separate keywords

Copyright Status: Unknown

Copyright Notice:

Copyright Info URL:

Go To URL...

Created: 4/27/11 12:09:24 PM
Modified: 4/27/11 12:09:24 PM
Application: Preview
Format:

Powered By
XMP

Cancel   OK

PDF Document Anomalies

When a paper document is scanned on a scanner and saved as a PDF file it normally contains only a single layer of graphical information.   The PDF that appears on the White House website however, contains multiple layers of graphical information.   Multiple layers usually appear in a document like this when it is being edited or modified in some fashion.

It is possible to take a single layer PDF and inadvertently create multiple layers, without changing the image in any fashion. But that does not appear to be the case here. The multiple layers in the PDF document are a result of changes made to the image. It is not known of all the changes that may have been made, several changes are identifiable.

Another anomaly in the PDF document is the 'white halo' around the majority of text in the document. This particular type of white halo indicates, and how it appears in the layers indicate, again, that someone was attempting to enhance the clarity of the text in the document.

This does not mean that other content in the document was not changed. However, most of the detectable changes are consistent with someone attempting to enhance the appearance of the document rather than change the content.

Layers within the PDF

The following series of images show components that make up the various layers or overlays of graphical information in the PDF document.

<u>Figure 1 - The full version of the PDF with all layers together</u>

This figure shows how the PDF document was broken up into multiple layers and where each of the layers is located. In other words, the document image was broken up into several images and combined into one document.

Overlay 1, main text.

Overlay 2, Field 17, mother's occupation

Overlay 3, Field 22, Date accepted by Reg. General

Overlay 4, Field 20, Date accepted by Local Reg.

Overlay 5, Stamp and signature of State Registrar

Overlay 6, Time stamp of State Registrar

Figure 2 – The background layer with all overlays removed.

After all the overlays are removed, what remains is the background layer. We see that most of the text is removed from the background layer. But random text, portions of signatures, and a white border behind the text remains.
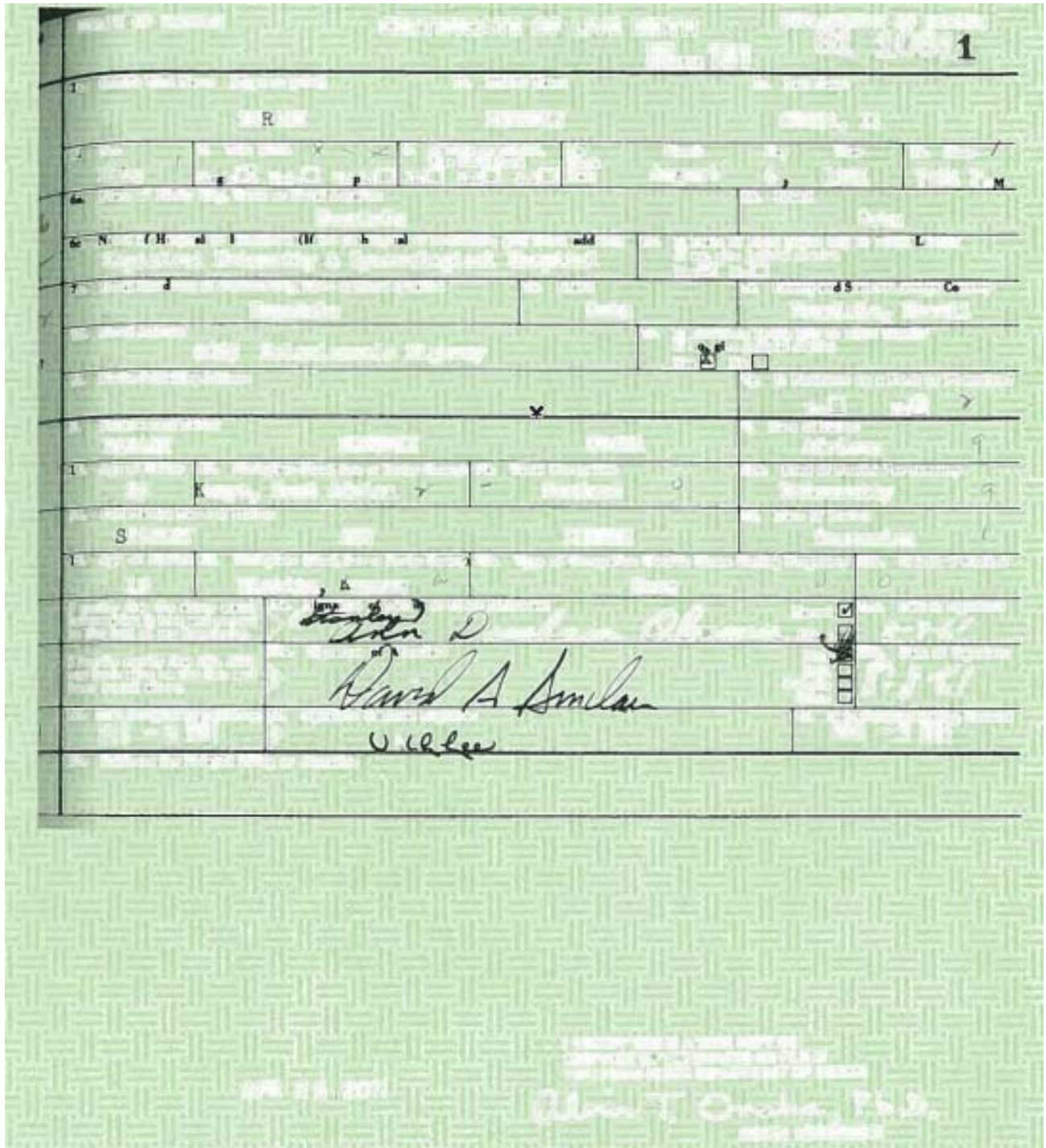
Figure 4 – Overlay 1, the main text

This overlay contains most of the text that was removed from the background layer. But other overlays have other specific pieces of text shown below.

Figure 5 – Overlay 2, Field 17a, Type of Occupation Outside Home During Pregnancy

In this field we see that the 'non' text was removed to a separate layer.
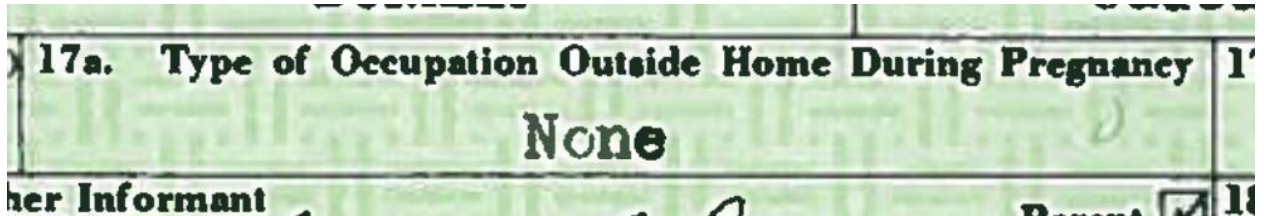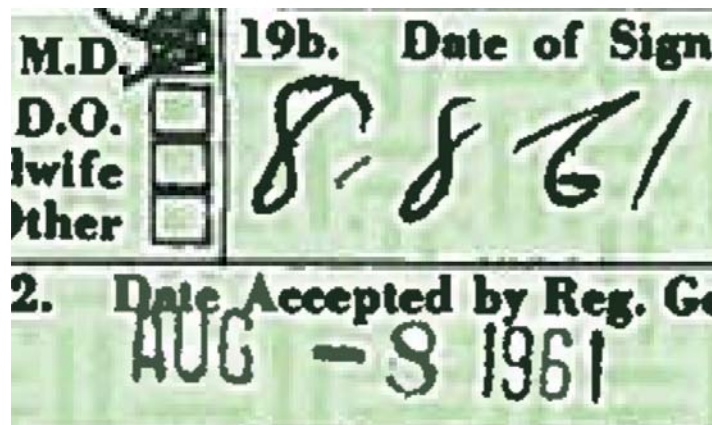
Combined layers:

Separate layers:

Figure 6 – Overlay 3, Field 22, Date Accepted by Reg. General

In this field we see that a portion of the date ("AUG – 8 6") was removed to a separate layer.
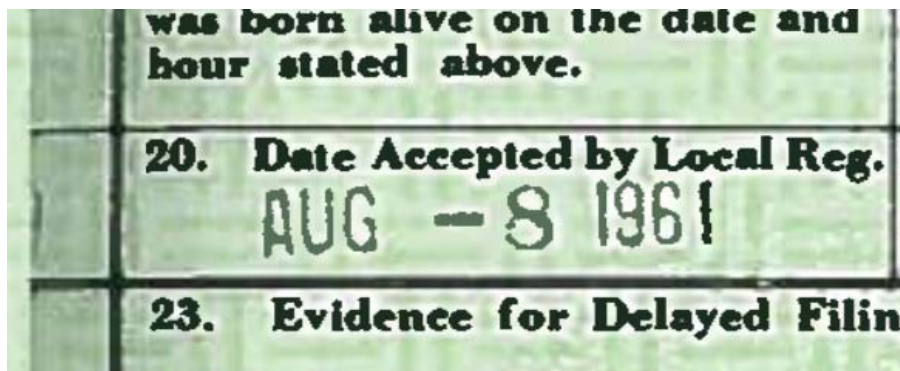
Combined layers:

Separate layer:

Figure 7 – Overlay 4, Field 20, Date Accepted by Local Reg.

In this field we see that a portion of the date ("AUG – 8 196") was removed to a separate layer.

Combined layers:

Separate layer:

Figure 8 – Overlay 5, Stamp and signature of State Registrar

In this field we see that the stamp and signature of the State Registrar was removed to a separate layer.

Figure 9 – Overlay 6, Time stamp of State Registrar

In this area we see that the date ("April 25 2011") was removed to a separate layer.

APR 2 5 2011

Summary of Layers

There are two groups of overlays as follows:

Group 1 - The black text overlays that are:

Overlay 1 - main text

Overlay 2 - mothers occupation

Group 2 – the Stamp overlays which are:

Overlay 3 – Date stamp of the Local Registrar

Overlay 4 – Date stamp of the Registrar General

Overlay 5 – Stamp of the State Registrar

Overlay 6 – Time stamp of State Registrar

All of the overlays were of a higher resolution than the background layer. This suggests that the overlays where created to enhance that content (ie. make the text darker and/or the edges sharper).

The only two plausible explanations for this pattern of layers is:

1. Someone was changing the content of both the text and the stamps.
2. Someone was systematically enhancing the black text layers for legibility, and then enhancing the stamp overlays separately for legibility.

White Halo around text

Figure 10 – White Halo on form

White Halo around
text and signatures
and form fields
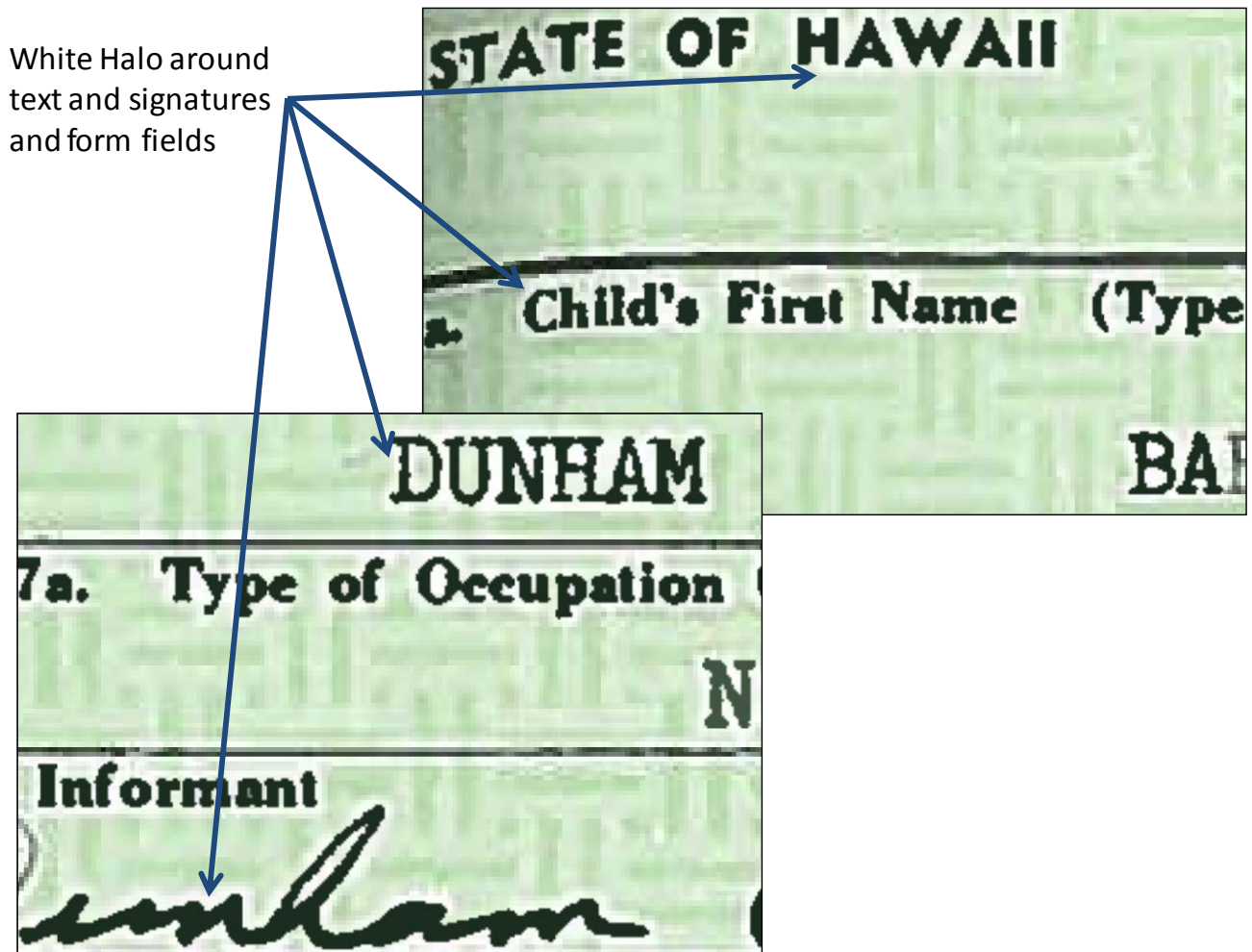
An enlargement shows that there is a white halo around most of the printing on the Certificate. It has been suggested that these "suspicious white borders" indicate that items were pasted into the image. The pasting of content itself does not necessarily create a white border. A more likely reason for this Halo effect is that the text was enhanced.

It is a common practice when enhancing a document with text on a dark background to set off black text with a white border to increase the contrast. If we look at the base layer, that appears to be exactly what has occurred. The base layer of the document has a separate white outline for most of the text.

Figure 11 – White Halo is in background layer

We see that when the Text layer is removed there is still a white text outline in the background layer. This indicates that the text is purposely being enhanced.
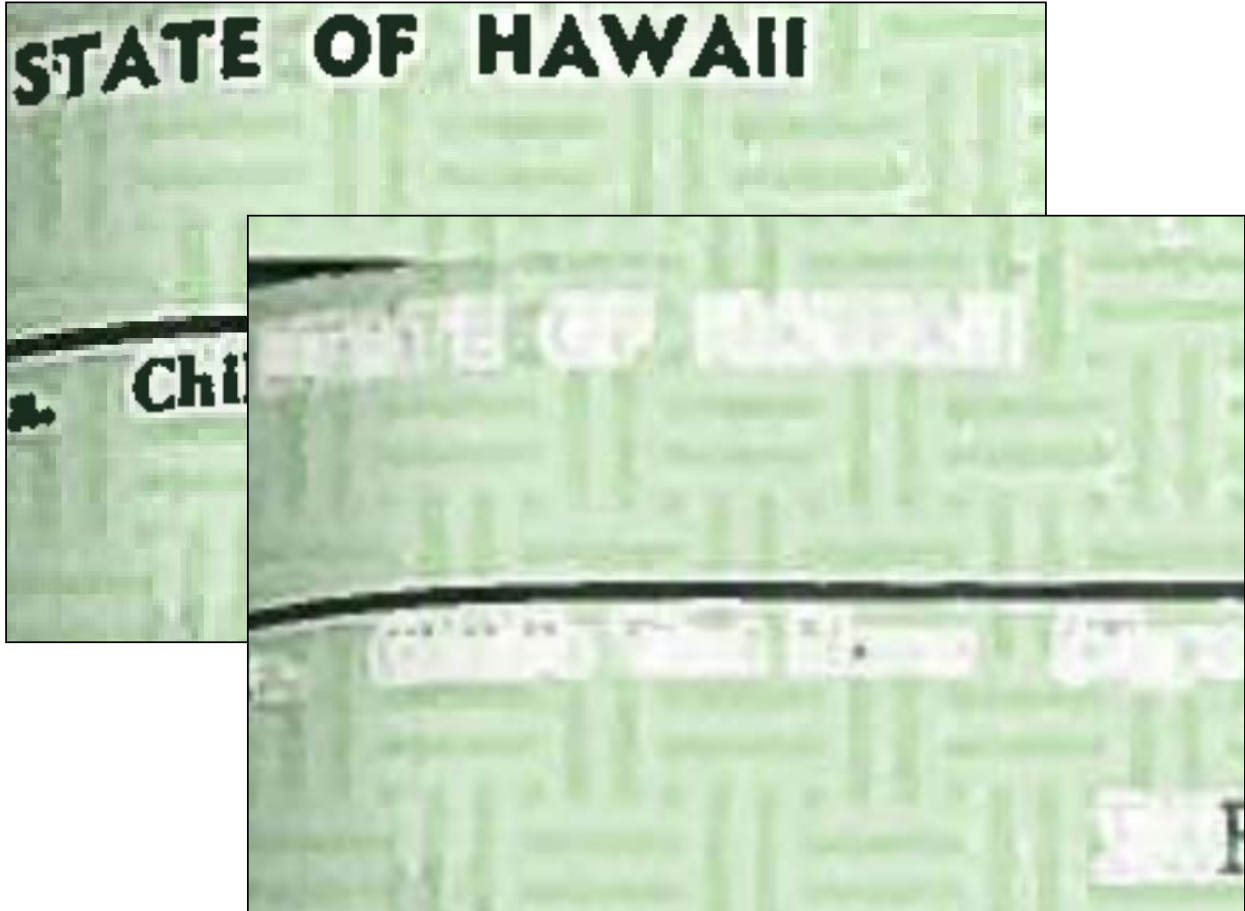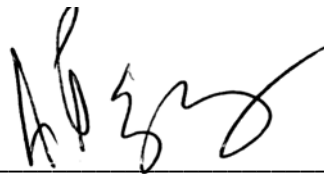
Conclusion

The following is a summary of my analysis:

1. The Hawaii Department of Health stated that they have a record of the birth certificate of Barak Obama.
2. A certificate was produced by the State of Hawaii and copied onto green safety paper, as per normal procedure.
3. The 'Green copy' was then scanned, presumably by the White House, to produce a PDF document.
4. The PDF document was then modified in some fashion (e.g. layers, white halo).

All of the modifications to the PDF document that can be identified are consistent with someone enhancing the legibility of the document. It is possible that in addition to enhancing the legibility of the document that the content of the document was also changed. There is no specific evidence of how or why that content would have been changed, but the evidence clearly indicates that the document was changed .

Signature

The forgoing report set forth my opinions as truthfully and accurately as possible for the time allotted and based on the materials available.

April 29, 2011   _____

                                              Ivan Zatkovich