1998: Testified in Federal Court in Miami, Florida, USA, as a qualified handwriting comparison expert.

2000: Retired as Chief Superintendant of D.LF.S., Israeli Police.

2000-Present: Freelance expert handwriting and questioned documents examiner.

During 42 years of questioned document examination, has written expert opinions for police forces in Israel, Sweden, Denmark, Australia, and the United States of America.

#### Some Notes on Arabic Handwriting

Like English, French, and other European languages, Arabic is written with an alphabet, which consists of 28 letters. In considering written Arabic, however, certain distinctive features should be noted:

- Arabic is written from right to left and has no print form. The handwriting is
  essentially cursive and, with specific exceptions, the characters in a word are
  connected.
- There are 18 basic forms used to write the letters of the Arabic alphabet. Some letters are written using only a basic form; others are written using a basic form supplemented by dots and lines (e.g., . ^) placed under or above the basic form. The dots are an integral element of the letters, and are called diacritical marks.
- Twenty-two of the letters of the alphabet are joined to both the letter that precedes
  and to the letter that follows (unless it is the first or last in a word). Those 22
  letters are written in four forms: initial, medial, final, and isolated. Each of the
  remaining six letters are joined only to the letter that precedes, and not to the one
  that follows, and are written only in two forms.

### Method of Comparison

When conducting a handwriting comparison I undertake the following steps:

First, I analyze all questioned documents and examine the details of all the characteristics within those documents. Handwriting characteristics are unique traits and patterns within an individual's handwriting style, and can be either simple or complex. Examples of handwriting characteristics are as follows: fluency, line quality, spacing, the structure and shape of letters and numbers and the connection between them, the relative size of letters, discritical marks, the use of symbols, and erasure technique. In addition, when an individual's signature is present, I analyze the overall structure and inherent characteristics of that signature.

After completing the above analysis, I compare the universe of handwriting characteristics for a particular questioned document to the known samples that are provided. To achieve that comparison, I look within the known samples for specific examples of each of the handwriting characteristics that are present in the questioned document.

I employed the aforementioned examination techniques when analyzing the documents referenced herein.

#### Documents Submitted for Examination

I received for examination the following questioned documents (collectively, "Questioned Documents") from Supervisory Special Agent Michelle A. Clark of the Federal Buseau of Investigation:

AFGP-2002-000006-0025 thru 0027, 0037, 0039 thru 0041, 0043 thru 0077 AFGP-2002-000010-0008 thru 0009, 0025 thru 0027, 0033, 0037, 0040, 0044, 0076, 0086<sup>1</sup>

AFGP-2002-000011-0002 thru 0006, 0008 thru 0014, 0016

AFGP-2002-000016-0104 thru 0105, 0108 thru 0109, 0112 thru 0113, 0124 thru 0125, 0130 thru 0131, 0148 thru 0149, 0167 thru 0168, 0171 thru 0176

AFGP-2002-000021-0065 thru 0068, 0075 thru 0076, 0095 thru 0096, 0115 thru 0116, 0121 thru 122, 0125 thru 0126, 0146

AFGP-2002-000024-0005, 0007 thru 0017, 0019 thru 0025, 0027 thru 0029, 0031, 0163 thru 0164, 0170

AFGP-2002-000025-0003

AFGP-2002-000078-0014, 0016, 0018, 0020, 00222

AFGP-2002-000080-0010, 0012, 0014, 0016, 0020, 0022, 0024<sup>3</sup>

AFGP-2002-000091-0001 thru 0003, 0005, 0007

AFGP-2002-000099-0001

**AFGP-2002-000112-**0002, 0004, 0006, 0008, 0010, 0012, 0014, 0016, 0018, 0020, 0022, 0024, 0026, 0028

AFGP-2002-003604-0001, 0003, 0005, 0007, 0009

AFGP-2002-003622-0001 thru 0002

AFGP-2002-003628-0001 thru 0002

AFGP-2002-003629-0001 thru 0002

AFGP-2002-003644-0001 thru 0008

AFGP-2002-003645-0001, 0003, 0005 thru 0006

AFGP-2002-003670-0001 thru 0002

AFGP-2002-000010 is spiral notebook containing approximately 155 pages of handwriting. For purposes of this handwriting examination, 11 pages were selected from different places in the notebook for analysis. AFGP-2002-000078 is a 14-page document consisting primarily of photocopied handwriting. Only five pages within that document (0014, 0016, 0018, 0020, 0022) contain original handwriting, and only that priginal handwriting was analyzed.

<sup>&</sup>lt;sup>3</sup> AFGP-2002-000080 is an eight-page document consisting primarily of photocopied handwriting. In addition to the photocopied handwriting, each page of the document contains original handwritten notes. For purposes of this Expert Ophtion, only the original handwriting contained on each page was analyzed.

AFGP-2002-006247-0033 thru 0034, 0043 thru 0046, 0051 thru 0052, 0095, 0095A4 AFGP-2002-800078-0083, 0085, 0087, 0089 AFGP-2002-800828-003-0001 AFGP-2002-800833-003-0001 AFGP-2002-800852-0001 AFGP-2002-800854-0001 thru 0002 AFGP-2002-800873-004-0001 thru 0002 In addition, I received what was presented to me as known, original handwriting samples, which I signed and numbered "S.A. 1" through "S.A. 88" (collectively, "Known Sample Documents"). Results of Examination 1. After analyzing the above-listed Questioned Documents, I have determined that all of the Questioned Documents were written by the same individual, with the exception of those listed in Paragraph 3 below. 2. In the case of the documents which I concluded were written by the same individual, I have found a match in the handwriting characteristics between the Questioned Documents and the Known Sample Documents provided to me. In my opinion, it is most probable that the following Questioned Documents were written by the same individual who wrote the Known Sample Documents: AEGP-2002-000006-0037, 0039 thru 0041, 0043 thru 0077 AFGP-2002-600010-0008 thru 0009, 0025 thru 0027, 0033, 0037, 0040, 0044, 0076, 0086 AFGP-2002-000011-0002 thru 0006, 0008 thru 0014, 0016 AFGP-2002-000024-0005, 0007 thru 0017, 0019 thru 0025, 0027 thru 0029, 0170 AFGP-2002-000025-0003 AFGP-2002-000078-0014, 0016, 0018, 0020, 0022 AFGP-2002-000080-0010, 0012, 0014, 0016, 0018, 0020, 0022, 0024 AFGP-2002-000091-0001 thru 0002, 0005 thru 0007 AFGP-2002-000099-0001 AFGP-2002-000112-0002, 0004, 0006, 0008, 0010, 0012, 0014, 0016, 0018, 0020, 0022, 0024, 0026, 0028 AFGP-2002-003604-0001, 0003, 0005, 0007, 0009 AFGP-2002-003622-0001 thru 0002 AFGP-2002-003628-00015 thru 0002 AFGP-2002-003629-0001 thru 0002 AFGP-2002-006247 contains approximately \$8 pages of handwriting. For purposes of this handwriting. examination. 10 pages were selected for analysis. in the case of Questioned Document AF(3P-2002-003628-000), although the bulk of the handwriting on the document is a match to the Known Sample Documents, there is a small amount of handwriting on each document that is not a match to the Known Sample Documents. I have circled those portions that are not a match to the Known Sample Documents, as can be seen on the attached photocopy of the original Operationed Document.

AFGP-2002-003644-0001 thru 00085 AFGP-2002-003645-0001, 0003, 0005 thru 0006 AFGP-2002-003670-0001 thru 0002 AFGP-2002-800078-001-0083, 0085, 0087, 0089 AFGP-2002-800852-0001 AFGP-2002-800854-0001 thrn 9002 AFGP-2002-800873-004-0001 thru 0002 3. For the following Questioned Documents, I did not find a match in the handwriting characteristics between the Questioned Documents and the Known Sample Documents provided to me. In my opinion, the following Questioned Documents were not written by the same individual who wrote the Known Sample Documents: AFGP-2002-000006-0025 thru 0027 AFGP-2002-000016-0104 thru 0105, 0108 thru 0109, 0112 thru 0113, 0124 thru 0125, 0130 thru 0131, 0148 thru 0149, 0167 thru 0168, 0171 AFGP-2002-000021-0065 thru 0068, 0075 thru 0076, 0095 thru 0096, 0115 thru 0116, 0121 thru 122, 0125 thru 0126, 0146 AFGP-2002-000024-0163 thru 0164 AFGP-2002-006247-0033 thru 0034, 0043 thru 0046, 0051 thru 0052, 0095, 0095A AFGP-2002-800828-003-0001 AFGP-2002-800833-033-0001 Details of my examination and photocopies of all documents are available upon request. SIGNED: Assisted in examination by: Handwriting Comparison and Document Examination Expert in the case of Questioned Documents AFGP-2002-003644-0001, 0003, and 0005, although the bulk of the handwriting on the documents is a match to the Known Sample Documents, there is a small amount of handwriting on each document that is not a march to the Known Sample. I have circled those portions that are not a match to the Known Sample Documents, as can be seen on the attached photocopies of the original Questioned Documents.

Although the bulk of the handwriting found on Questioned Document AFGP-2002-000024-0164 was not a match to the Known Sample Documents, on the bottom left-hand corner of that document there is a small amount of hardwriting in green link. In my opinion, that hardwriting in green link does much the hardwriting in the Known Sample Documents, and was most probably written by the same individual who wrote the Known Sample Documents.

### Addendum to Expert Opinion Dated 21 September 2012

In addition to the original, handwritten questioned documents analyzed in my Expert Opinion dated 21 September 2012 (collectively, "Original Questioned Documents"), I also received the following photocopied questioned documents from Supervisory Special Agent Michelle A. Clark of the Federal Bureau of Investigation (collectively, "Photocopied Questioned Documents"):

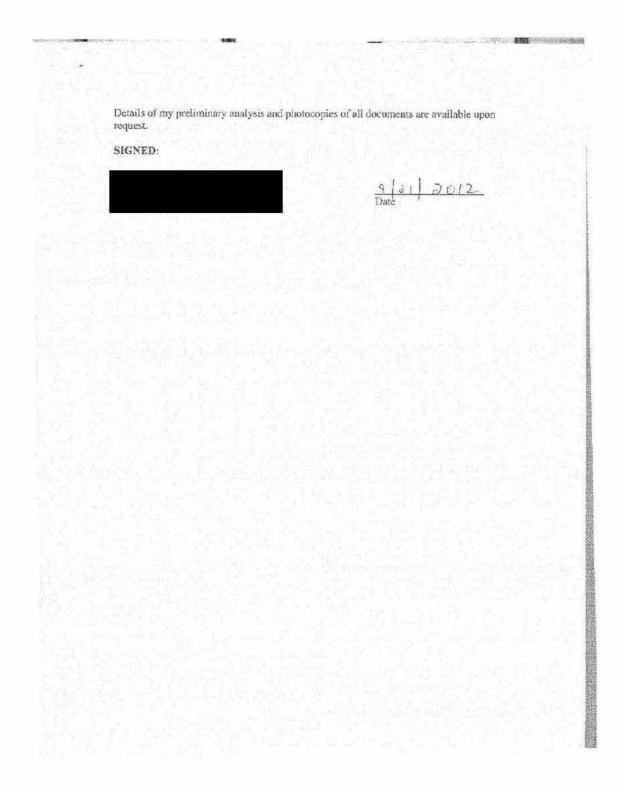
AFGP-2002-000046-0005, 0007, 0009, 0011, 0013, 0015<sup>1</sup>, 0017<sup>2</sup>, 0019, 0021 AFGP-2002-000082-0049, 0063, 0069, 0071, 0073, 0081 AFGP-2002-000085-0001, 0003, 0005, 0007 AFGP-2002-000088-0001, 0003, 0005, 0007, 0009 thru 0010 AFGP-2002-000089-0001, 0003, 0005

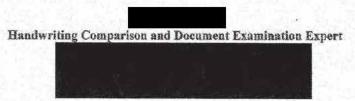
After completing a preliminary analysis of the Photocopied Questioned Documents, it is my opinion that with the exception of the documents noted in Footnote 3 below, all of the above-listed Photocopied Questioned Documents were <u>most probably</u> written by the same individual who wrote the Original Questioned Documents referenced in Results Paragraph 2 of my Expert Opinion. In addition, the Photocopied Questioned Documents were <u>probably</u> written by the same individual who wrote the Known Sample Documents that were defined and referenced in my Expert Opinion.

As a general rule, photocopied questioned documents are less preferable to original questioned documents for purposes of analysis. This is due to the fact that certain handwriting characteristics (e.g., fluency, line quality, connections, directions, and letter or number structure) can be lost in the photocopies. These characteristics are essential to a handwriting examination, and without the ability to make those comparisons a definitive conclusion cannot be reached. Because of that fact, I conducted only a preliminary analysis of the Photocopied Questioned Documents. For these reasons, my conclusion cannot be more definitive.

I also received for comparison one original, handwritten document labeled AFGP-2002-000098-0003, and I conducted a preliminary analysis of that document to the Known Sample Documents that were defined and referenced in my Expert Opinion. After completing that preliminary analysis, it is my opinion that AFGP-2002-000098-0003 was most probably written by the same individual who wrote the Original Questioned Documents analyzed in my Expert Opinion. In addition, AFGP-2002-000098-0003 was probably written by the same individual who wrote the Known Sample Documents that were defined and referenced in my Expert Opinion. However, due to the poor condition of the original document, my conclusion cannot be more definitive.

AFGP-2802-000046-0015 and AFGP-2002-000046-0019 are photocopies of the same source document. AFGP-2002-000046-0017 and AFGP-2002-000046-0017 are photocopies of the same source document. With respect to AFGP-2002-000046, after a preliminary assessment it is my opinion that documents 005, 0007, 0009, 0011, 0013, 0015, and 0019 were likely not written by the same individual who wrote the Original Questioned Documents analyzed in my Expert Opinion dated 21 September 2012.





24 September 2012

#### **Expert Opinion**

I, as a handwriting comparison and document examination expert, hereby give my signed opinion:

#### Educational Background

1967: Graduate of the Hebrew Gymnasium. Jerusalem, Israel.

1967-1969: Courses in Arabic reading and writing while serving in the Israeli Army (IDF).

1980: Spoken Arabic course in the IDF.

1981: Senior Officer's training, Israeli Police.

1986: Course on Paper Examination, Israeli Fiber Institute, Jerusalem, Israel.

1987: Spoken Arabic course in "Ulpan Akive," Natania, Israel.

1990: Course, "Selected Processes in Printing," Amal School, Tel Aviv, Israel.

1994: Course on Paper Preparation and Identification, American Israeli Paper Mills Ltd., Hadera, Israel.

#### Professional Experience

1968-1969: Teacher of Arabic in the Israeli Army, as part of National Service.

1970-1974: Training in Hebrew, Arabic, and English handwriting comparison, technical examination of documents (crasures, obliterations, types of ink, printing, etc.), examination of forged currency, and examination of typewriters and typescripts under the supervision of Superintendant Varda Tamir.

1974: Accredited by Israeli Police as an expert witness in the field of handwriting comparison and document examination.

1979-2002: Responsible for general training of new recruits to the Questioned Document Laboratory and especially in the field of handwriting comparisons in Hebrew and Arabic.

1998: Testified in Federal Court in Miami, Florida, USA, as a qualified handwriting comparison expert.

2000: Retired as Chief Superintendant of D.I.F.S., Israeli Police.

2000-Present: Freelance expert handwriting and questioned documents examiner.

During 42 years of questioned document examination, has written expert opinions for police forces in Israel, Sweden, Denmark, Australia, and the United States of America.

#### Some Notes on Arabic Handwriting

Like English, French, and other European languages, Arabic is written with an alphabet, which consists of 28 letters. In considering written Arabic, however, certain distinctive features should be noted:

- Arabic is written from right to left and has no print form. The handwriting is
  essentially cursive and, with specific exceptions, the characters in a word are
  connected.
- There are 18 basic forms used to write the letters of the Arabic alphabet. Some letters are written using only a basic form; others are written using a basic form supplemented by dots and lines (e.g., ^) placed under or above the basic form. The dots are an integral element of the letters, and are called discritical marks.
- Twenty-two of the letters of the alphabet are joined to both the letter that precedes
  and to the letter that follows (unless it is the first or last in a word). Those 22
  letters are written in four forms: initial, medial, final, and isolated. Each of the
  remaining six letters are joined only to the letter that precedes, and not to the one
  that follows, and are written only in two forms.

# Method of Comparison

In conducting a handwriting comparison where there are no known samples provided to me, I analyze all of the questioned documents and the details of all the characteristics within those documents. Handwriting characteristics are unique traits and patterns within an individual's handwriting style, and can be either simple or complex. Examples of handwriting characteristics are as follows: fluency, line quality, spacing, the structure and shape of letters and numbers and the connection between them, the relative size of letters, diacritical marks, the use of symbols, and erasure technique. In addition, when an individual's signature is present, I analyze the overall structure and inherent characteristics of that signature. I then compare the handwriting characteristics found in each of the questioned documents provided to me in order to determine if it is likely that the same individual authored all of the documents.

I employed the aforementioned examination technique when analyzing the documents referenced herein.

#### Documents Submitted for Examination

I received for examination the following questioned documents (collectively, "Questioned Documents") from Supervisory Special Agent Michelle A. Clark of the Federal Bureau of Investigation:

AFGP-2002-000006-0001, 0003, 0005, 0013 thru 0018, 0029 thru 0030, 0119 thru 0122, 0133 thru 0134

AFGP-2002-000110-0001 AFGP-2002-003471-0001 thru 0002 AFGP-2002-003672-0001, 0003 AFGP-2002-800826-003-0001 AFGP-2002-800828-003-0001 AFGP-2002-800833-003-0001

#### Results of Examination

 After analyzing the above-listed Questioned Documents, I have determined that the following Questioned Documents were written by the same individual:

AFGP-2002-000006-0001, 0003, 5005, 0013 thru 0018, 0029 thru 0030, 0119 thru 0122
AFGP-2002-000110-0001<sup>2</sup>
AFGP-2002-003672-0001, 0003<sup>3</sup>
AFGP-2002-800826-003-0001
AFGP-2002-800828-003-0001

AFGP-2002-800833-003-0001

<sup>&</sup>lt;sup>1</sup> For the following Questioned Documents, although the majority of the document was written by the same individual, there are small postions or each document that were not written by that individual: AFGP-2002-000006-0122, AFGP-2002-800826, AFGP-2002-800828, AFGP-2002-800833. Those portions that were not written by the same individual can be seen circled in pencil on the attached photocopies of the original Questioned Documents.

Questioned Documents.

In the case of AFGP-2002-000110, the only portion of the document that is handwritten is the signature. I have determined that the signature is that of the same individual who authored the other Questioned Documents listed in Paragraph 1.

In the case of AFGP-2002-003672-001 and 903, the only portion of each document that is handwritten is the signature and a small amount of writing in the upper right hand corner of the document. I have determined that those signatures and handwritten portions were written by the same individual who authored the other Questioned Documents listed in Paragraph 1.

 I have determined that the following Questioned Documents were not written by the same individual who wrote the Questioned Documents listed in results Paragraph 1, phone;

AFGP-2002-000006-0133 thru 0134 AFGP-2002-003471-0001 thru 0002

Details of my examination and photocopies of all documents are available upon request.

SIGNED:

9/24/2012 Date

Assisted in examination by:

Handwriting Comparison and Document Examination Expert