

UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NORTH CAROLINA

UNITED STATES OF AMERICA,)
)
 Plaintiff,)
)
 vs.)
)
 JEFFREY R. MacDONALD,)
)
 Applicant/Defendant,)

Crim. No. 75-26-CR-3
No. 5:06-CV-24-F
Judge James C. Fox

APPENDIX THREE

To

**PETITIONER'S STATEMENT OF ITEMIZED MATERIAL EVIDENCE - WITH
CITATIONS TO THE RECORD OR TO AUTHENTICATED PROOFS - IN
SUPPORT OF HIS MOTION UNDER 28 U.S.C. SECTION 2255 TO VACATE HIS
SENTENCE**

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NORTH CAROLINA
FAYETTEVILLE DIVISION

UNITED STATES OF AMERICA)

v.)

JEFFREY R. MacDONALD)

Nos. 75-26-CR-3
90-104-CIV-3-D

AFFIDAVIT OF PHILIP G. CORMIER No. 1
(CONCERNING SARAN FIBERS) IN SUPPORT OF
JEFFREY R. MacDONALD's MOTION TO REOPEN
28 U.S.C. § 2255 PROCEEDINGS AND FOR DISCOVERY

I, Philip G. Cormier, being first duly sworn, state as follows:

1. I am an associate in the law firm of Silverglate & Good, 83 Atlantic Avenue, Boston, Massachusetts 02110, counsel for the petitioner Jeffrey R. MacDonald in the above styled and numbered action.

2. I make this affidavit in support of defendant Jeffrey R. MacDonald's Motion to Reopen 28 U.S.C. § 2255 Proceedings and for Discovery which is filed herewith. All statements made herein are based upon information and belief unless otherwise stated.

3. In order to put the present motion into proper context, this affidavit sets forth some of the history and background to the 28 U.S.C. § 2255 Petition (hereinafter the "1990 Petition") filed by Dr. MacDonald in the Eastern District of North Carolina in October 1990, which is the proceeding that MacDonald now seeks to re-open. References to affidavits and briefs previously submitted in connection with the 1990 Petition, or in earlier

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proceedings in this case which are already part of the record, are designated herein by the term "(Rec.)" to distinguish them from the affidavits that are being submitted in support of the instant Motion to Reopen 28 U.S.C. § 2255 Proceedings.

**I. Background to the Saran Fiber Issue
Raised By MacDonald's 1990 Petition.**

4. On October 19, 1990, MacDonald filed a petition for habeas relief pursuant to 28 U.S.C. § 2255. In this petition, MacDonald claimed, inter alia, that he had been denied a fair trial in violation of his due process rights under Brady v. Maryland, 373 U.S. 83 (1963), and Mooney v. Holohan, 294 U.S. 103 (1935), and their progeny, because (1) the government failed to disclose exculpatory evidence consisting of certain handwritten laboratory benchnotes compiled by government forensic examiners, and (2) the prosecution presented a false picture to the trial jury concerning the existence of evidence showing that intruders had been in the MacDonald home on the night of the murders.

5. MacDonald's 1990 Petition focussed on two sets of handwritten laboratory benchnotes: The first set revealed that in the spring of 1971, Janice Glisson, an Army forensic lab examiner, had found blond synthetic hairs, up to 22-inches in length, on a clear-handled hairbrush found on a table in the living room/dining area of the MacDonald apartment. See Affidavit of John J. Murphy (Rec.) (hereinafter "Murphy Aff. (Rec.)") at ¶ 23. The second set of handwritten benchnotes revealed that FBI forensic lab examiner James Frier had

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discovered black (later described by the FBI in 1991 as dark blue and purple) wool fibers on the mouth and biceps area of victim Colette MacDonald, and on the wooden club murder weapon that the government claimed was used on Mrs. MacDonald and which was found outside the MacDonald home. These wool fibers were found not to match any known clothing sources in the MacDonald apartment. See Murphy Aff. (Rec.) at ¶ 39. Neither of these sets of handwritten notes were disclosed to the defense prior to Dr. MacDonald's trial in 1979; nor were these findings revealed on any of the final typewritten laboratory reports that were disclosed to the defense prior to trial.

6. In his 1990 Petition, MacDonald argued that the findings contained in these handwritten benchnotes were highly exculpatory because they demonstrated the presence of intruders in the MacDonald home, thereby corroborating his account of events -- that he and his family had been attacked by a group of intruders consisting of three men and a blond-haired woman with a floppy hat. MacDonald maintained that these laboratory findings were direct evidence that a woman named Helena Stoeckley, who had confessed on numerous occasions to having been involved in the murders, and who admitted to owning and wearing a blond, shoulder-length wig, had actually been present in the MacDonald home during the murders. In his briefs, MacDonald pointed out how these laboratory findings corroborated other evidence which already pointed to Stoeckley as one of the intruders.

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(a) Stoeckley made numerous pre- and post-trial statements in which she incriminated herself and indicated that she and a group of associates had been involved in the MacDonald family murders. See Jeffrey MacDonald's Brief in Support of 28 U.S.C. § 2255 Petition (10/19/90) (Rec.) at 21-27; Jeffrey MacDonald's Reply Brief in Support of 28 U.S.C. § 2255 Petition (5/14/91) (Rec.) at 9-13; Addendum to MacDonald's Reply Brief -- Compilation and Analysis of Case Evidence (5/14/91) (Rec.) at A11-A38.

(b) Stoeckley herself had testified at trial that she usually wore black and dark purple clothing, and that she owned and wore a shoulder-length blond wig but that she discarded the wig and clothing right after the MacDonald family murders for fear that these items could be used to connect her to the murders. See Jeffrey MacDonald's Brief in Support of 28 U.S.C. § 2255 Petition (10/19/90) (Rec.) at 21-22; Jeffrey MacDonald's Reply Brief in Support of 28 U.S.C. § 2255 Petition (5/14/91) (Rec.) at 9-10; Addendum to MacDonald's Reply Brief -- Compilation and Analysis of Case Evidence (5/14/91) (Rec.) at A12-A13.

(c) Stoeckley, in her testimony, claimed not to be able to recall her whereabouts during the precise hours of the murders. See Jeffrey MacDonald's Brief in Support of 28 U.S.C. § 2255 Petition (10/19/90) (Rec.), at 21, 24; Addendum to MacDonald's Reply Brief -- Compilation and

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Analysis of Case Evidence (5/14/91) (Rec.) at A12.

(d) MacDonald had described one of the intruders as a woman with blond hair, a floppy hat and boots. Significantly, a woman with shoulder length hair and a floppy hat was observed standing on a street corner at 3:30 a.m. in the rain less than a mile from the MacDonald home by a military police officer who was responding to Dr. MacDonald's telephone call for help. This officer testified that the presence of this woman on this corner at this time of the night was so unusual that, had he not been answering an emergency call, he would have stopped to investigate her. See Jeffrey MacDonald's Reply Brief in Support of 28 U.S.C. § 2255 Petition (5/14/91) (Rec.) at 10; Addendum to MacDonald's Reply Brief -- Compilation and Analysis of Case Evidence (5/14/91) (Rec.) at A10, footnote 7.

(e) The length of the blond synthetic fibers identified by Army forensic examiner Janice Glisson were consistent with their having originated from a blond shoulder-length wig such as the one which Stoeckley had acknowledged that she owned and which others had observed her wearing on numerous occasions. See Jeffrey MacDonald's Brief in Support of 28 U.S.C. § 2255 Petition (10/19/90) (Rec.), at 29-39; Jeffrey MacDonald's Reply Brief in Support of 28 U.S.C. § 2255 Petition (5/14/91) (Rec.) at 40-45. Addendum to MacDonald's Reply Brief -- Compilation and Analysis of Case Evidence (5/14/91) (Rec.) At A4-A20.

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7. MacDonald further argued these blond synthetic hair findings and the findings of black wool on Colette MacDonald and the wooden club corroborated Stoeckley's pre-trial, out-of-court confessions that she had participated in the murders and had been in the MacDonald home on the night in question. Had this corroborating evidence been known to the defense and the trial judge, MacDonald argued, it would have resulted in the admission into evidence of Stoeckley's confessions under Fed.R.Evid. 804(b)(3), rather than their resulting in their exclusion as the trial judge had ruled. See Jeffrey MacDonald's Brief in Support of 28 U.S.C. § 2255 Petition (10/19/90) (Rec.), at 36; Jeffrey MacDonald's Reply Brief in Support of 28 U.S.C. § 2255 Petition (5/14/91) (Rec.) at 12-13, 17; Addendum to MacDonald's Reply Brief -- Compilation and Analysis of Case Evidence (5/14/91) (Rec.) at A31-A32. Finally, MacDonald argued that this evidence demonstrated his "factual innocence," and had it been available to the defense at the time of trial, he would have been acquitted, because the government would never have been able to have argued to the jury -- as it did with devastating impact -- that there was no physical evidence to support MacDonald's account of events. See Jeffrey MacDonald's Brief in Support of 28 U.S.C. § 2255 Petition (10/19/90) (Rec.), at 49-77; Jeffrey MacDonald's Reply Brief in Support of 28 U.S.C. § 2255 Petition (5/14/91) (Rec.) at 5-12, Addendum to MacDonald's Reply Brief -- Compilation and Analysis of Case Evidence (5/14/91) (Rec.) at A2-A46.

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8. The government responded to MacDonald's claims by asserting, inter alia, that the 22-inch blond synthetic hairs and the black wool fibers were not exculpatory and did not demonstrate MacDonald's factual innocence, arguing that (a) the blond synthetic fibers were composed of Saran, a material that the government claimed could not be, and was not, used to make wigs for human cosmetic use but, rather, was used for doll hair, See Response of the United States to Defendant's Petition for Post-Conviction Relief Pursuant to 28 U.S.C., § 2255 (2/22/91) (Rec.) at 28-29; Supplemental Memorandum of the United States (5/21/91) (Rec.) at 13-14; Motion Hearing before the District Court (6/26/91) (Rec.) Tr. at 44-45, (b) that the black wool fibers were merely household debris, despite the fact that they could not be matched with any known sources found in the MacDonald home, See Response of the United States to Defendant's Petition for Post-Conviction Relief Pursuant to 28 U.S.C., § 2255 (2/22/91) (Rec.) at 32-34, and (c) MacDonald's claims should not be heard because his failure to bring this evidence to the attention of the courts in an earlier § 2255 petition constituted and "abuse of the writ." See Response of the United States to Defendant's Petition for Post-Conviction Relief Pursuant to 28 U.S.C., § 2255 (2/22/91) (Rec.) at 71-81.

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**II. The Government's Claim That Blond
Saran Fibers Were Not Used in
the Manufacture of Wigs Worn By Humans.**

9. As the basis for its argument that the findings of its laboratory experts did not support MacDonald's claim of factual innocence, the government submitted two affidavits from FBI Special Agent Michael P. Malone, who conducted a laboratory re-examination of the blond synthetic fibers. (The Affidavit of Michael P. Malone, 2/14/91, hereinafter "Malone Aff. (Rec.)," is attached hereto as Exhibit 1; the Supplemental Affidavit of Michael P. Malone, 5/21/91, hereinafter "Malone Supp. Aff. (Rec.)," is attached hereto as Exhibit 2.) Based on this re-examination and what Malone described as his "own investigation and research," the details of which are more fully described below, Malone averred that (a) the blond synthetic hairs found on the clear-handled hairbrush found at the crime scene were made from a substance called "Saran"; (b) these blond Saran fibers were consistent with fibers in the FBI's doll hair collection but not consistent with fibers in the FBI's wig hair collection; © Saran fibers could not be manufactured in a physical form called a "tow" that is essential to the manufacture of wigs for human (cosmetic) use; and therefore (d) the Saran fibers in question could not possibly have come from the blond shoulder-length wig owned and worn by Helena Stoeckley.

10. In his two affidavits, Malone stated that there were a total of five blond Saran fibers on the clear-handled hairbrush:

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Q-46 -- identified by Malone as two blond fibers, one 24-inches long and the other nine-inches long. See Malone Supp. Aff. (Rec.) (Ex. 2) at ¶ 5.

Q-49 -- identified by Malone as one light blond fiber, 22-inches long. See Malone Supp. Aff. (Rec.) (Ex. 2) at ¶ 5.

Q-131A -- identified by Malone as containing two light blond Saran fiber fragments. See Malone Aff. (Rec.) (Ex. 1) at ¶ 12.

In addition, Malone stated that he found in the clear-handled hairbrush a single grey, delustered modacrylic fiber which matched fibers removed from a "fall" belonging to Colette MacDonald. Malone Supp. Aff. (Rec.) (Ex. 2) at ¶ 5.

11. With respect to the blond Saran fibers in exhibits Q-46, Q-49 and Q-131A, Malone stated in his first affidavit (Ex. 1), filed in support of the Government's response to MacDonald's petition:

All of these saran fibers (Q-46, Q-49, Q-131A) are consistent with the type of fibers normally used in the production of doll hair and are similar to a known sample of Saran doll hair from the FBI Laboratory reference collection (See Photo Exhibit 12). These fibers (Q-46, Q-49, Q-131A) are not consistent with the type of fibers normally used in the manufacture of wigs, and based on my comparisons, are not like any of the known wig fibers currently in the FBI Laboratory reference collection.

Malone Aff. (Rec.) at ¶ 12, p. 7. In this first affidavit, Malone made no statements about the physical properties of Saran, and in particular made no statements that Saran could not be made

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in a physical form that is essential to the human wig manufacturing process.

12. MacDonald responded to Malone's first affidavit (Ex. 1) by arguing:

The [government's] brief states that one of the blond synthetic hair exhibits is "microscopically identical to the known doll hair exemplar in the FBI's reference collection" and that it "matches the FBI exemplar." (GB at 29) However, Malone attests to nothing of the sort. Instead, in very guarded phrases, he states that this hair is "similar to a known sample" of doll hair in the FBI reference collection. He does not say that it is "microscopically identical" or "matching" to the FBI exemplar. (Malone Aff. at 7)

The government's brief also attempts to use Malone as an authority for the far-fetched theory that the 22-inch synthetic blond wig hairs "probably originated in dolls owned by the MacDonald girls. Malone Aff. at 7." (GB at 45). However, the Malone Aff. at 7 says absolutely nothing about the improbability or probability of such an origin for the blond synthetic hairs. In fact, Malone provides evidence to the contrary, when he states that he examined three dolls owned by the MacDonald children and determined that the synthetic blond hairs he removed from the clear-handled hairbrush are "dissimilar to 'hair' from these dolls and could not be associated with these particular dolls." (Malone Aff. ¶ 12) Therefore, Malone's Affidavit is at variance with the government's brief. Indeed, only a very big doll would have 22-inch-long hair -- bigger than any doll anyone suggests the MacDonald girls ever had.

Jeffrey R. MacDonald's Reply Brief in Support of 28 U.S.C. § 2255 Petition Seeking Relief From Conviction Obtained by the Suppression of Exculpatory Evidence (Rec.) at 30, n.22.

13. In response, the government filed a supplemental memorandum of law and the supplemental affidavit from Agent Malone (Ex. 2). In this memorandum, the government stated:

[MacDonald] further maintains that the government mischaracterized the remaining fibers discovered by

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Glisson by identifying them as doll hair.

To definitively resolve this issue, FBI forensic expert Michael P. Malone has executed a supplemental affidavit which directly addresses such contentions (Malone Aff. 1-4). [footnote 7 omitted] In particular, Agent Malone avers that each of the striated synthetic fibers "made to look like hairs" that he had examined were identified by Glisson as those she removed from the clear handled hair brush and referenced in her laboratory bench notes. One microscopic slide on which these fibers were mounted (Q-46), contained two blond saran fibers, 24 inches and nine inches long respectively. A second slide (Q-49) contained a single 22 inch blond saran fiber 22 inches in length. A third slide (Q-48) contained a single grey delustered five inch modacrylic fiber, which matched a fall owned by Colette MacDonald. None of the saran fibers matched any wig exemplar in the FBI's reference collection; one of the saran fibers, however, matched known saran doll hair in the reference collection. Moreover, no standard reference concerning the uses of synthetic fibers, known to Agent Malone, reflects the use of saran fibers in wigs worn by humans. Instead, the standard references show that saran fibers are used to simulate hair in dolls and manikins, as well as the in [sic] manufacture of mops and patio screens. Indeed due to its physical characteristics and appearance, saran is totally unsuited for use in cosmetic wigs, the use to which petitioner speculates it was put in this case. [footnote 8] Consequently, the discovery of the long saran fibers in the clear handled hairbrush cannot conceivably assist petitioner's theory that the murder of the MacDonald family was committed by intruders -- one of whom wore a blond wig.

Footnote 8

The theory that the synthetic fibers at issue in this case originated in a wig is nothing more than sheer speculation. Petitioner has not attempted to refute the government's assertion, first presented in its opening brief (Br. 28-29) that saran fibers are totally unsuited for the manufacture of human wigs.

Supplemental Memorandum of the United States (5/21/91) (Rec.) at 13-14 (emphasis added).

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14. Similarly, at the hearing held before the district court on June 26, 1991, the government argued:

Mr. DePue: Saran, we know from our expert, is totally unsuited for the manufacture of wigs, has never been known to have been used in the manufacture of wigs because it simply doesn't appear anything like human hair. Its sole use, so far as our forensic examiner knows, is to be used in the manufacture of doll hair, in screens, mops and mannequins. I'm aware of no evidence that even suggests in this record that Helena Stoeckley was wearing a mop or perhaps mannequin hair.

The Court: Well, Defendant suggests on the other hand that no doll has twenty-two inch long hair.

Mr. DePue: That's right, Your honor, but what we know from working with this case and working with our forensic specialists, it's one that when dolls are made the hair is typically looped or woven inside the skull of the doll, accounting for or explaining the length of the hair but the important thing to understand is that Saran has never been used in human wigs. Nonetheless not only --

The Court: Women used to wear something, I believe I heard it described as a doughnut, a little curl of hair on the back of the head. Are you suggesting that dolls have that?

Mr. DePue: I have never seen one, Your Honor. I think what else is significant here is that Mr. Malone, our FBI forensic specialist, compared one of these saran hairs to a standard in the FBI reference collection and found the two to be consistent. Saran hair being fully consistent with a doll hair from the head of a doll in the FBI's reference collection. So one explanation for the length of this fiber is that it was very likely doubled in the skull of the doll, the type of dolls we know to have been owned by the MacDonald children and to have been in the MacDonald household at the time.

Motion Hearing (6/26/91) (Rec.) Tr. at 44-45 (emphasis added).

15. In his supplemental affidavit (Ex. 2), Malone made the following statements about the physical properties of Saran fibers and the inability to manufacture them in a physical form

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essential to the cosmetic wig manufacturing process:

It is my understanding based upon reading the pleadings in this case, that the petitioner contends that Helena Stoeckley owned a blond shoulder length wig (as defined above), which was further described as being "stringy". Further, it is my understanding that there is no record evidence as to whether this wig was composed of specific synthetic fibers or human hair. In any event, to the extent that petitioner contends that the "22-inch blond synthetic" fibers removed from [the clear-handled hairbrush] are consistent with having originated from a cosmetic blond wig allegedly owned by Helena Stoeckley, there is no factual or scientific basis for this conclusion. I base my statement on the following facts and observations.

Malone Supp. Aff. (Rec.) (Ex. 2) at ¶ 4 (emphasis added).

With respect to Exhibits Q-46, Q-48 and Q-49, the microscopic slides previously identified by Janice Glisson as those now containing the striated blond synthetic fibers made to look like hairs, which she previously removed from Exhibit K, E-323 (see Glisson Affidavit at pp. 3-4), I personally determined that Exhibit Q-46 contained two blond fibers which were of 24-inch and 9-inch lengths, respectively. Further instrumental analysis by SA Robert Webb of the Materials Analysis Unit (MAU) determined that these fibers were composed of Saran. My own microscopic examination determined that these two blond Saran fibers were striated, and one matched the FBI Laboratory's known Saran doll hair reference exemplar (see photo exhibits 11 and 12 to my previous affidavit) and did not match any wig exemplar in the reference collection. [footnote]. Similar examinations performed on Exhibit Q-49 revealed a single light blond striated fiber, which was 22-inches in length, and also did not match any wig exemplar in the FBI reference collection.

Footnote: The FBI Laboratory's reference collection of fibers has been maintained for over forty years. Among other items, it contains numerous samples from wigs, all of which I have personally examined and none of which revealed a known wig exemplar of Saran. Rather all of the known wig exemplars are composed of polyvinyl chloride (PVC), modacrylic or human hair.

Malone Supp. Aff. (Rec.) (Ex. 2) at ¶ 5.

In addition, to performing physical examinations in this case, I have consulted numerous standard

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references (see Exhibits 1-6 attached to this affidavit) which are routinely used in the textile industry and as source material in the FBI Laboratory, concerning the industrial applications for fibers, including Saran. None of these standard references reflect the use of Saran fibers in cosmetic wigs; however, they do reflect the use of Saran fibers for wigs for dolls and manikins, in addition to such uses as dust mops and patio screens.

Malone Supp. Aff. (Rec.) (Ex. 2) at ¶ 6 (footnote omitted; emphasis added).

Further, based on my own investigation and research in this case, I can state that Saran has the following physical characteristics which make it unsuitable for use in cosmetic wigs, in which the objective is to have the wig hair appear indistinguishable from natural human hair. Saran is very straight, is only manufactured as a continuous monofilament, does not lay or drape like human hair, and is also too shiny to resemble human hair. Lastly, Saran can not be manufactured as a 'tow' fiber [footnote], which is essential to the cosmetic wig manufacturing process.

Footnote: A "tow" is a large group of continuous filaments without any definite twist, which is cut into definite lengths.

Malone Supp. Aff. (Rec.) (Ex. 2) at ¶ 7 (emphasis added).

Based upon these factors described above, and in the absence of any evidence to the contrary, I conclude that the 22 and 24 inch blond Saran fibers in this case are not cosmetic wig fibers.

Malone Supp. Aff. (Rec.) (Ex. 2) at ¶ 8 (emphasis added).

16. On July 8, 1991, the district court denied MacDonald's petition, relying heavily on Malone's affidavits:

[C]lose analysis of the actual fiber evidence at issue reveals that the fibers provide little, if any, support for MacDonald's account of the crimes. In order to formulate its response in this action, the government submitted the fibers and hair at issue to an FBI forensic examiner, Michael P. Malone, for reexamination. According to Malone, the blond synthetic fibers found in Colette's clear-handled hairbrush and discussed in the lab notes were not consistent with blond wig hairs from any known wig

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fibers currently in the FBI laboratory reference collection. Of the four synthetic fibers from the brush which have been analyzed . . . three are composed primarily of "Saran," a substance which is not suitable for human wigs, but is used to make mannequin and doll hair, dust mops, and patio screens. MacDonald has presented no evidence that blond Saran fibers have ever been used in the manufacture of human wigs. While MacDonald argues that Stoeckley's blond wig which was described by one witness as "stringy", may have been a mannequin wig, such speculation is unsupported by any evidence in the record.

* * *

Given that the synthetic blond fibers appear not to be wig hair and that the other fibers at issue are unmatched to each other and to known sources, the allegedly suppressed evidence would simply mirror other evidence of unexplained household debris that was presented to the jury.

U.S. v. MacDonald, 778 F.Supp. 1342, 1350-51 (E.D.N.C. 1991)

(emphasis added).

17. Subsequent defense investigation into the reference texts cited by Malone in his affidavit revealed that he had cited only textile reference works which did not state that Saran was used to make wigs. On its own, the defense located reference works (by authors Dembeck and Stout) which documented the contemporary use of Saran for the manufacture of cosmetic wigs, and which also stated that Saran was made in "tow" form.

18. In the Reply Brief of Appellant filed with the United States Court of Appeals for the Fourth Circuit (Rec.) (hereinafter referred to as "MacDonald's Fourth Circuit Reply Brief (Rec.)"); the defense pointed out Malone's selective citation of the textile reference works in his supplemental affidavit that had been filed in the district court:

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Further, the government's contention that saran was not used in wigs for human use, is based on the government's selective citation to what it calls "standard references". There are other "standard references" not cited, which document the contemporary use of saran for human wigs. See e.g., A. Dembeck, Guidebook to Man-Made Textile Fibers and Textured Yarns of the World (United Piece Dye Works, 3d ed., 1969) ("Saran: Fil. yarn, tow for dolls' hair, wigs, ENJAY; monofil, SPARK-L-ITE, USA licensees: Enjay Fibers" [emphasis supplied]); E. Stout, Introduction to Textiles (John Wiley & Sons, Inc. 3d Ed., 1970) ("In its various forms [saran] is used for auto upholstery and seat covers, . . . wigs and doll hair, . . . and numerous other things" [emphasis supplied].)

MacDonald's Fourth Circuit Reply Brief (Rec.) at 14, n. 16.

19. At the oral argument before the Fourth Circuit on February 5, 1992, counsel for MacDonald again pointed out that Malone's conclusion that Saran was not used in the manufacture of wigs was erroneous and that the Dembeck and Stout textile reference works expressly stated that Saran was used in "wigs." See Transcript of Oral Argument before the United States Court of Appeals, Feb. 5, 1992, at p. 48, attached hereto as Exhibit 3. The government responded to this argument by telling the Court of Appeals:

First, with respect to the sources that are not cited in the records of law. If you take a look at them, none of them suggest that wig, that these fibers are used in human wigs. The records are purely in the context of dolls and we have copies of the books here if Your Honor wishes to examine them.

Transcript of Oral Argument before the United States Court of Appeals, Feb. 5, 1992, at p. 49, a copy of this transcript is attached hereto as Exhibit 3. The Court of Appeals did not take the government up on its offer to inspect the reference texts.

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20. On February 6, 1992, in a post-argument letter filed with the Court of Appeals, the defense attempted once again to bring the Dembeck and Stout reference works that state that Saran was used in "wigs" to the attention of the Court. (A copy of this letter and the texts that were submitted to the Court are attached hereto as Exhibit 4.) In this letter, counsel for MacDonald stated, inter alia:

Saran wig fibers.

The government claimed during oral argument that the synthetic blond fibers made to look like hair [footnote 1] were likely either doll hairs or mannequin wig hairs, not hairs from a wig meant for human use. The Court below drew a similar conclusion at A 4424. This conjecture is based upon the affidavit of government forensic examiner Michael Malone, who cited "standard references" that indicated that Saran was used for doll hair and mannequin wigs. (A 4200).

At oral argument, Circuit Judge Russell asked appellant's counsel where in the record the Court might find support for counsel's contention that the government engaged in dubious selection in citing these "standard texts", ignoring other such texts that indicate Saran was used for "wigs", not just wigs for dolls or mannequins. The question never got fully answered. Appellant's Reply Brief cites these other contemporary standard texts at page 14, fn. 16. Because this issue became prominent only when Judge Dupree wrote his opinion, and hence after the record below was closed, and because such standard texts are subject to judicial notice, [footnote 2] appellant's counsel simply supplied the citations to these texts in his reply brief.

For the convenience of the Court, we enclose herewith as Exhibits "A" and "B" to this letter, photocopies of the applicable pages to those standard texts, as follows:

Exhibit A

Evelyn E. Stout, Introduction to Textiles. John Wiley & Sons, Inc.: New York. 3rd Ed., 1970, pp. 236-238.

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Exhibit B

Adeline A. Dembeck, Guidebook to Man-Made Textile Fibers and Textured Yarns of the World. The United Piece Dye Works: New York. 3rd Ed., 1969, pp. 81, 210.

In the event this Court is not satisfied that this sufficiently disposes of the question of whether or not Saran was used for making "wigs", rather than only doll or mannequin wigs -- and that the resolution of this factual issue actually makes a difference [footnote 3] -- we respectfully submit that the issue can be resolved only with an evidentiary hearing. It would work a serious miscarriage of both due process and of fundamental justice for this Court to allow the government to compound the sin of selective suppression of laboratory notes, with the further sin of improper selection from among "standard references". It is particularly important to resolve these factual issues with a hearing, in light of the experience at oral argument, when counsel for the government assured this court that he had reviewed the texts cited in appellant's brief, and that they did not support appellant's position that Saran was used for "wigs", not just doll wigs and mannequin wigs. As the attached exhibits show, the standard texts state precisely what appellant's brief said they show.

FN 1 See government forensic examiner Janice Glisson's laboratory bench notes making this identification at A 1612 (tentative identification) and A 1623-24 (confirmatory identification).

FN 2 See *Marquardt Co. v. United States*, 822 F.2d 1573, 1578 (Fed. Cir. 1987) (judicial notice taken of two current accounting texts); *Urbanek v. United States*, 731 F.2d 870, 873 (Fed. Cir. 1984) (judicial notice taken of current accounting handbooks); *B.V.D. Licensing Corp. v. Body Action Design, Inc.*, 846 F.2d 727, 728 (Fed. Cir. 1988) ("[D]ictionaries and encyclopedias may be consulted . . . [when] courts . . . take judicial notice of facts of universal notoriety.").

FN 3 On the current record, Malone's affidavit supports appellant's contention that the Saran very likely came from a wig such as the one Helena Stoeckley was described as having worn. As appellant has noted, the hairs would not have come from a doll, since they were too long (22 inches), and, in any event, no doll with matching hair was found in the apartment against

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which to match these hairs. In addition, the record demonstrates that Stoeckley's wig was "stringy" and that she wore it as a "joke" and not as a serious part of a serious wardrobe, and that she therefore very likely would have had a wig of mannequin quality. See Appellant's Brief, p. 17 and 17, fn. 19.

21. In response to MacDonald's post-argument letter, the government responded with its own letter on February 10, 1992, (attached hereto as Exhibit 5), stating the following with respect to the Saran fiber issue:

The defendant maintains that, in the district court, he neglected to attempt to demonstrate that Saran is used in the manufacture of human wigs because "this issue became prominent only when Judge Dupree wrote his opinion, and hence after the record was closed * * *." (Letter 2). In the court below, however, one of the government's principal arguments concerning the Saran fibers was that Saran was "consistent with the type of fibers normally used in the production of doll hair." Gov't Response at 28. To support that argument, it introduced the affidavit of Michael P. Malone, the senior examiner of the FBI Hairs and Fibers Unit, which asserted that Saran fibers "are not [the word "not" should be omitted; it is a typographical error, corrected by the government in a February 11, 1992 letter to the Fourth Circuit, attached hereto as Exhibit 6] consistent with the type of fibers normally used in the production of doll hair and are similar to a known sample of known doll hair from the FBI laboratory reference collection" (Malone Aff. 7). In a supplemental affidavit, Examiner Malone added that standard references that he had consulted do not reflect the use of Saran fibers in human cosmetic wigs and added that, based on his own investigation and research, the "physical characteristics of Saran make it unsuitable for use in cosmetic wigs, in which the objective is to have the wig hair appear indistinguishable from natural human hair (Malone Supp. Aff. 3-4; JA 4200-01)." [emphasis added]. Despite the fact that the use of Saran for human cosmetic wigs was, therefore, clearly placed in issue by the government, appellant made no effort whatsoever in the district court to present evidence showing that it was used in human wigs or tending to contradict that presented by Examiner Malone. A footnote referenced in appellant's Reply before this Court marked the first occasion in which he cited references purporting to establish the use of Saran in the manufacture of wigs. [Footnote 2]

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FN 2 See Reply at 14 n. 16. To compensate for his failure to develop a factual record in the district court, appellant now suggests that this Court should take judicial notice of the fact that Saran is used in the manufacture of human cosmetic wigs. But see Fed. R. Evid. 201(b) ("a judicially noticed fact must be one not subject to reasonable dispute in that it is * * * (2) capable of accurate and ready determination by resort to sources whose accuracy cannot reasonably be questioned)."

In connection with his present claims concerning the blond synthetic fibers, appellant also maintains (Letter at 2 n.3), that the blond synthetic fibers found by Glisson were too long to be doll hair. FBI Examiner Malone, however, matched one of these strands, which was 24 inches long, with doll hair from the FBI exemplar collection and found the two to be identical (JA 3963-3966). In addition, as we explained during argument in the Court below, doll hair is doubled or looped when placed in the skull of a doll (JA 4356). A 22 inch fiber is, therefore, consistent with an 11 inch strand on a doll. Appellant has never attempted to rebut this explanation.

22. The Fourth Circuit affirmed the District Court's denial of MacDonald's petition. In so doing, the Court of Appeals, like the District Court, credited Malone's affidavits, stating that "[a]ccording to one of [the government's] forensic experts, the three blond synthetic hairs found in the brush were made of Saran, an inexpensive substance generally used only in doll hair and mannequin wigs," United States v. MacDonald, 966 F.2d 854, 857 (4th Cir. 1992), and it concluded near the end of its opinion that "the origins of the hair and fiber evidence have several likely explanations other than intruders." Id. at 860.

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III. Agent Malone's Claims That The Saran Fibers Could Not Have Originated From a Wig Found at the Crime Scene Are Demonstrably False in a Number of Material Respects, and the Government Withheld Exculpatory Evidence From the Defense Which Put Malone and Others In the Government On Notice that These Claims Were False.

23. After the Fourth Circuit affirmed the denial of MacDonald's 1990 Petition, the defense conducted further investigation into Agent Malone's claims that Saran fibers were not used, and could not be used, in the manufacture of human wigs. As a result of this investigation, the defense has learned that not only were agent Malone's claims false, but that the government withheld exculpatory information from the defense which put the lie to his claims.

24. First, through the Freedom of Information Act ("FOIA"), the defense has learned that the FBI Laboratory where agent Malone worked has at least two copies of the Dembeck textile reference book in its own reference library. This is the very same book which the defense attempted to bring to the attention of the Court of Appeals, and which the government convinced the Court of Appeals to disregard. The evidence further suggests that the FBI Laboratory was in possession of the Dembeck reference work before agent Malone filed his supplemental affidavit in the District Court, in which he asserted that "[n]one of these standard references reflect the use of Saran fibers in cosmetic wigs" In addition, the FBI Laboratory (or at least the Department of Justice ("DOJ")), appears to possess its own copy of the Stout textile reference book which

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the defense likewise attempted to bring to the attention of the Court of Appeals. See ¶¶ 28-36, *infra*.

25. Second, the defense has learned that shortly after MacDonald filed his § 2255 petition in October 1990, the government conducted a field investigation into the question of whether Saran fibers were used in the manufacture of cosmetic wigs, but it was apparently unable to find an outside expert willing to state that Saran fibers were not used in the production of wigs. On December 4, 1990, agent Malone, FBI agent "Butch" Madden, and Assistant United States Attorney Eric Evenson interviewed A. Edward Oberhaus, Jr., an executive at Kaneka America Corporation, which manufactures modacrylic (non-Saran) fibers under the tradename "Kanekalon" for use in wigs. The government drafted an affidavit for Oberhaus in which it sought to have him state that Saran fibers could not be manufactured in a form that was suitable for the wigmaking process, i.e., that Saran could not be used to make wigs. Oberhaus would not sign on to this statement. Instead, he provided the government with a signed affidavit in which he stated: "Wigs and hairpieces during the period 1960 to date have most often been manufactured with human hair, modacrylic fibers, other fibers or a combination of any of these filaments." This signed affidavit from Oberhaus and the information it contained were never disclosed to the Court or to the defense in connection with the litigation involving MacDonald's 1990 petition. Instead, Malone proceeded to submit his own supplemental affidavit (Ex. 2) in which he made the very statements that Oberhaus had refused to make. See ¶¶ 37-51, *infra*.

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26. Third, through FOIA materials received by the defense in May 1996 (the FBI cover letter to this FOIA letter is dated April 30, 1996), the defense also learned that on or about December 5, 1990, Agent Malone, AUSA Evenson, and an unidentified agent (probably "Butch" Madden) interviewed two employees of Mattel Toys, Inc., in California, about the use of Saran fibers in the manufacture of doll hair, in their attempt to ascertain whether Saran fibers as long as 24 inches could have come from a doll. The two Mattel employees interviewed were Judy Schizas and Mellie Phillips. Both Schizas and Phillips confirmed that Saran fibers were used by Mattel in the manufacture of doll hair. However, Schizas and Phillips also provided Malone, Evenson and the other agent with information which directly contradicted Malone's subsequent claim that Saran was not made in "tow" form. These Mattel witnesses also put Malone and the others on notice that his theory that a Saran fiber as long as 24 inches could have come from a doll was highly improbable, as Schizas and Phillips told the government that Mattel had never made a doll which had Saran fibers as long as 22 or 24 inches, and Phillips also told them that she did not recall other manufacturers during the late 1960s and early 1970s which used Saran fibers as doll hair. This exculpatory information -- which directly undermined the government's repeated claims that Saran fibers were not used, and could not be used, in wigs, and that the Saran fibers in question likely came from a doll -- was never disclosed to the defense. See ¶¶ 52-54, *infra*.

27. Finally, the defense has located a number of

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individuals in the Saran fiber and wig manufacturing industries who have confirmed that Saran fibers were made in "tow" form and were used in the manufacture of wigs worn by humans, contrary to the representations in Agent Malone's Supplemental Affidavit. One of these individuals has even provided the defense with an actual "tow" of blond Saran fibers. See ¶¶ 56-75, infra.

- A. Through the Freedom of Information Act, the Defense Has Discovered That The Government Has Its Own Copies of the Dembeck and Stout Textile Reference Books That the Defense Attempted to Bring to the Attention of the Fourth Circuit, and Which the Government Successfully Urged the Fourth Circuit to Disregard.

28. After the Fourth Circuit rejected MacDonald's 1990 Petition, MacDonald's FOIA attorney, Anthony Bisceglie, submitted a series of Freedom of Information Act ("FOIA") requests to the Department of Justice ("DOJ") and the Federal Bureau of Investigation ("FBI") for materials in the government's files related to the government's Saran fiber investigation in this case.

29. On January 14, 1993, Bisceglie's law firm sent two different FOIA request letters to various entities within the DOJ and the FBI. The first letter was sent to the following entities: (a) Criminal Division of the DOJ, (b) the FOIA Section of the FBI, and (c) FBI Headquarters. (Copies of this letter are attached hereto as Exhibit 7.) It sought the following:

1. All records, including, but not limited to, handwritten lab notes, typed lab reports, summaries, analyses, charts, graphs, notes, memoranda, correspondence, lab results or computer printouts

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relating to all forensic examinations, laboratory tests or analyses including, but not limited to, forensic examinations, laboratory tests or analyses conducted by FBI agents Michael P. Malone or Robert F. Webb in connection with the government's response to the MacDonald petition for habeas corpus that was filed in the Federal District Court for the Eastern District of North Carolina on October 19, 1990 in United States v. MacDonald, No. 75-26-CR-3.

2. All records, including, but not limited to, books, texts, reference works, treatises, compendiums, reports, memoranda, articles, papers or notes relating to the manufacture and use in consumer goods of synthetic fibers known as "Saran", that were reviewed in connection with the MacDonald case. [emphasis supplied].

3. All FBI records, including library-type catalog cards, lists or bibliographies, which list and reference the books, texts, reference works, treatises, compendiums, trade journals or articles relating to the manufacture and use in consumer goods of synthetic fibers known as "saran".

30. The second FOIA request letter was sent to both the Criminal Division of the DOJ and FBI Headquarters. (Copies are attached hereto as Exhibit 8.) It sought the following:

1. All records or other information relating to correspondence, interviews, discussions, communications or any other contacts with individuals or entities in the private sector and/or employees of other government agencies or components regarding synthetic fiber manufacturing or wig manufacturing in connection with the United States v. MacDonald case in the United States District Court for the Eastern District of North Carolina.

31. On April 30, 1993, Bisceglie received a letter from the Chief of the DOJ FOIA Unit, Marshall R. Williams, responding to the FOIA requests described in ¶ 29, supra. Williams stated, inter alia:

This is in response to your request dated January 14, 1993, on behalf of your client, Jeffrey R. MacDonald for all records described in paragraph 1-3 of your letter relating to the MacDonald petition habeas corpus [sic] and synthetic fibers known as "saran".

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We have conducted a search of the appropriate index and section of the Criminal Division and located the enclosed publication excerpts which are responsive to your request. . . .

(A copy of this letter and the "enclosed publication excerpts" are attached hereto as Exhibit 9.)

32. The "publication excerpts" that Williams enclosed were from the same publications that the defense had provided to the Fourth Circuit in its post-argument letter: (A) Adeline A. Dembeck's Guidebook to Man-Made Textile Fibers and Textured Yarns of the World (Third Edition), and (B) Evelyn E. Stout's textbook, Introduction to Textiles (Third Edition). As noted in ¶ 17 supra, both of these textile reference works state without qualification that Saran fibers were used in "wigs," and the Dembeck text states that Saran was made in "tow" form. As explained in ¶¶ 33-36, infra, these "publication excerpts" from the Dembeck and Stout texts were not merely regurgitations of the excerpts that MacDonald submitted to the Fourth Circuit. Rather, these excerpts from the government are from different copies of these publications, and, as to the Dembeck text, it is clear that the FBI Laboratory had at least two copies of this particular text in its reference collection.

33. The Dembeck Guidebook excerpt provided by the government under the FOIA (see Ex. 9) has the following identification stamp on the cover page:

F.B.I. LABORATORY
M.A. UNI. -- 3931
COPY NO:2

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In addition to this stamp, there is a handwritten notation on the cover page which seems to indicate that this copy of Dembeck has been in the possession of the FBI laboratory since at least May 1979, a month before MacDonald's trial which took place in the summer of 1979. This handwritten notation reads:

"There will never
be another edition" --
per publisher
5/31/79

It is thus apparent not only that the FBI had a copy of this text when Agent Malone executed his two affidavits in this § 2255 proceeding, but it had the text as well prior to commencement of the MacDonald trial.

34. Further, the FBI Laboratory identification stamp which appears on the Dembeck excerpt is the same stamp which appears on one of the six reference texts which Agent Malone submitted as an exhibit to his supplemental affidavit (Ex. 2). Exhibit six to agent Malone's supplemental affidavit is an excerpt from Matthews, Textile Fibers, John Wiley & Sons, Inc., (6th ed.). On the cover page of this Matthews excerpt is the following identification stamp:

F.B.I. LABORATORY
M.A. UNI. -- 3931
COPY NO:1

35. The excerpt from the Stout text that was obtained under the FOIA does not have an FBI Laboratory identification stamp on it. However, it clearly is not a physical copy of the Stout text excerpt that was submitted by MacDonald to the Fourth Circuit in 1992. The excerpt from the Stout text provided by the government

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via the FOIA has a number of identifying characteristics which are not present on the copy submitted by the defense to the Fourth Circuit, leading me to conclude that (a) the FBI Laboratory or the DOJ independently has its own copy of the Stout reference book in its reference collection, and (b) given the date of the text (1970), it is likely that the Stout book was in the possession of the FBI Laboratory or the DOJ at the time Agent Malone's Supplemental Affidavit was filed on May 21, 1991, and possibly long before that. For example, on the upper righthand corner of the cover page on the government's copy of the Stout book is a "Bates" stamp number, which, although somewhat illegible, appears to be either "21332", "21002" or "21882". See Ex. 9 hereto. This number does not appear on the cover page of the Stout text that was submitted by the defense in its post-argument letter. In addition, there are a number of other obvious differences between the defense and government copies of the Stout text, including publisher information and copy quality. On the defense's copy of the Stout texts, there is the Boston Public Library call number which is not present on the government copy.

36. The table below compares the identifying characteristics of the copies of the Dembeck and Stout texts that the defense submitted to the Fourth Circuit with the "publication excerpts" that were obtained from the government under the FOIA, and this comparison makes it clear that the copies provided by the government in response to MacDonald's FOIA requests are

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distinct from what the defense submitted to the Court.

| FBI Copy (April 30, 1993) | Defense Copy (Feb. 6, 1992) |
|---|--|
| STOUT TEXT | |
| Darker copy quality, different position on page | Lighter copy quality, different position on page |
| Bates Stamp number in Upper Right Corner of title page | No Bates Stamp |
| Stamp of "Textile Book Service" of Metchuen, N.J., not present on defense copy. | Publishers Information: John Wiley & Sons, not present on FBI copy |
| No Publication Page included. | Publication Page copied, with Boston Public Library call number. |
| DEMBECK TEXT | |
| Darker copy quality, different position on page, fewer pages included. | Lighter copy quality, different position on page, more pages included. |
| No Publication Page included. | Publication Page copied, with Boston Public Library call number. |

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| | |
|---|------------------------------------|
| <p>***Stamp on Title Page Reads:</p> <p>"F.B.I. LABORATORY, M.A. UNI. --3931, COPY NO: 2" (this stamp matches some on the texts <u>included</u> by Malone in his Supplemental Affidavit)</p> | <p><u>No F.B.I. stamp</u></p> |
| <p>***Handwritten Notations:</p> <p>1) New York phone number: "(212) 840-0400", with arrow drawn to N.Y. office of publisher;</p> <p>2) Upper Right, notation: "There will never be another edition' — per publisher 5-31-79"</p> | <p><u>No Such Handwriting</u></p> |
| <p>Saran Entry, p. 210, the number "210" appears to be underlined w/marker.</p> | <p><u>No such underlining.</u></p> |

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B. The Government's Field Investigation Unearthed Exculpatory Information Which Directly Contradicted Agent Malone's Claims That Saran Fibers Could Not be Used in Wigs, and Which Corroborated MacDonald's Claim That the Blond Saran Fibers Came From a Wig Rather Than a Doll.

37. On October 30, 1992, I received a telephone call from MacDonald defense team member Lucia Bartoli, who informed me that she had been conducting research into the question of whether Saran fibers were used in wigs for human cosmetic uses. Bartoli told me that she had just spoken by telephone to a man named A. Edward Oberhaus, Jr., Senior V.P. of Kaneka America Corporation ("Kaneka"). She told me that Kaneka makes modacrylic (non-Saran) fibers for wigs and doll hair.

38. Ms. Bartoli told me that during her conversation with Oberhaus, he informed her that he had been interviewed by government investigators in December of 1990 in connection with the MacDonald case. Further, he had been asked to sign an affidavit to the effect that Saran fibers were not used in wigs for human cosmetic use, and he was asked whether he agreed with the proposition that Saran was used only for dolls' hair. I asked Ms. Bartoli to find out whether Oberhaus was willing to speak with me directly, and a short while later, she phoned back to tell me that he was willing to speak with me.

39. That same afternoon, I telephoned Oberhaus directly by calling Kaneka's office in New York City (212-826-0002) and introduced myself. Oberhaus told me that, on December 4, 1990, he received a visit from two FBI agents and an Assistant United

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States Attorney named Eric Evenson. The government investigators told Oberhaus that they were interested in trying to identify certain fibers that they thought were "probably Saran," and that they wanted to know what types of fibers Kaneka manufactured and how these fibers could be traced.

40. Oberhaus told me that the government investigators who visited him were interested in obtaining an affidavit from him to the effect that Saran was not used to make cosmetic wigs. Oberhaus told them that he could not say this. He told them that, while he had knowledge of the use of Saran in the doll industry, he simply did not have the expertise to say that Saran was not used in the wig industry and had no knowledge of such use. A precise man, Oberhaus told them that simply because he had knowledge that Saran was used in the doll industry, it was not evidence that Saran was never used in the wig industry. He told them he could not attest to what they were asking him to say. Oberhaus told me that he had been given some type of draft statement (he did not indicate during our conversation whether it was an affidavit) which he told me that he changed or rewrote because he could not state that Saran was not used in the manufacture of human wigs. He also told me that he referred Evenson and the agents to a Mr. Yamada of the Asahi Chemical Co. of Japan, which manufactures Saran fibers.

41. In addition to the above-described October 30, 1992 conversation, I spoke with Oberhaus again by telephone on November 12, 1992. Oberhaus related much of the same information

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in ¶¶ 37-40 above, and he expanded on it by describing the processes by which synthetic fibers are manufactured. In addition, he described the processes by which doll hair is attached to a doll's head. During this conversation, he told me that, with respect to Saran, he had no knowledge that it was not used in the hairgoods industry and believed it was not, but he could not rule out that it may have been used to make Halloween costume wigs or something of that nature. He said that his knowledge of Saran came from his familiarity with the "Barbie" dolls made by the Mattel Corporation which, until 1982, had hair made of Saran fibers. In 1982, his company began supplying Mattel with Kanekalon modacrylic fibers for use in "Barbie" dolls. He told me that this is where he had seen Saran used in a monofilament form, but he also stated that he did not know whether or not Saran had been made in "tow" form.

42. During this November 12, 1992 phone conversation, Oberhaus also told me that the two FBI agents who, with AUSA Eric Evanson, visited him on December 4, 1990, identified themselves as Special Agent Michael Malone and Special Agent "Butch" Madden. (See Affidavit of Harvey A. Silverglate at ¶ 7, hereinafter "Silverglate Aff.", attached hereto as Exhibit 10.) As noted in ¶ 51 below, I learned in May 1996 that an FBI "302" report was written by the FBI agents (presumably Malone and Madden) who attended the December 4, 1990 interview. The 302 indicates that it was dictated on December 7, 1990, and transcribed on January 7, 1991. The copy of this 302 report received by the defense via

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the FOIA has the agents' names redacted.

43. Oberhaus told me that when the government investigators visited him in December 1990, they did not bring an affidavit with them for his signature, but that they sent it to him on a later date. It was not until later, in August 1993, that I learned that the government had sent Oberhaus the draft affidavit by facsimile machine on January 8, 1992. See ¶¶ 48-49, below and Silverglate Aff. (Ex. 10) at ¶ 10. Oberhaus told me that after reviewing the government's draft affidavit, he could not sign it because he did not have the knowledge that was required to make the statements that were contained in it. He told me that he and his lawyers revised the affidavit and informed the government that he would sign the revised version, but not the one that the government had drafted. Oberhaus declined to give me the names of his lawyers, but offered to contact them to see if they would be willing to speak with me.

44. On November 18, 1992, Oberhaus was interviewed in person by Attorney Harvey A. Silverglate at Kaneka's offices in New York City. During this interview with Silverglate, Oberhaus confirmed the information that he had given to me over the telephone concerning the December 4, 1990 interview by the government investigators. Silverglate Aff. (Ex. 10) at ¶¶ 5-9.

45. Oberhaus told Silverglate that the investigators asked him numerous questions about fibers in general, and stated that they were particularly focused on Saran fibers and whether such fibers were or could be used to make wigs for human cosmetic use.

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Id. at ¶ 8. Oberhaus told Silverglate that the government investigators were interested in trying to get an affidavit from him to the effect that Saran was not used to make wigs worn by humans. Id. at ¶¶ 9 & 13. Oberhaus told the government investigators that he could not attest to such a statement, and told Silverglate that he had explained to the agents that his company did not produce Saran fibers, and that he was not an expert on the subject. Id. at ¶ 9.

46. Oberhaus also told Silverglate that given the 22-inch length of these Saran fibers, it was unlikely that they came from a doll. Id. at ¶ 5. Silverglate explained to him that the government had suggested that the fiber might have been looped into the doll's head. Oberhaus responded that even if the fiber had been looped, it would not be that long if it came from a doll. In addition, he told Silverglate that looping is not the way that hair is generally inserted into a doll's head. Id. Oberhaus told Silverglate that doll hair is made either by creating, in effect, a doll's wig, or by "punching," or embedding, the hair in clumps into the plastic head of the doll, not by looping the hair. Id.

47. During the meeting with Silverglate, Oberhaus declined, on the advice of his lawyer, to give Silverglate a copy of the draft affidavit that had been sent to him by the government, but he did give Silverglate a copy of the final revised affidavit that Oberhaus executed on January 24, 1991 and which he told Silverglate he sent to the government. Id. at ¶ 9. Oberhaus

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told Silverglate that if he wanted, Silverglate could contact Kaneka's lawyer about obtaining a copy of the government's draft affidavit. Id.

48. On August 9, 1993, after communications with Oberhaus' lawyer, Silverglate received a copy of the draft affidavit that the government had sent to Oberhaus. Silverglate Aff. at ¶ 10. This draft, which is dated January 8, 1991, was faxed to Oberhaus from the United States Attorney's Office for the Eastern District of North Carolina. (A copy of this draft affidavit, which has what appear to be Oberhaus' handwritten notations on it, is attached to the Silverglate Affidavit as Exhibit 2.) In this draft affidavit, the government sought to have Oberhaus attest to many of the statements which he earlier had told the government's investigators he could not make and which he once again refused to make. See ¶¶ 8-12.

49. The government's draft affidavit for Oberhaus' signature, which he declined to sign, included the following statements:

"Wigs, both then and now, have been manufactured from human hair, modacrylic fiber, or a combination of both. Modacrylic fibers are the only synthetic fibers used in the production of wigs." ¶8 [Next to this second sentence, the word "No" is written, apparently by Oberhaus.]

"This is due to both the nature of the modacrylic fiber itself, as well the methods used to manufacture both the modacrylic fibers and wigs." ¶8 [Next to this sentence, a question mark (?) is written, apparently by Oberhaus.]

"Modacrylic fibers can be manufactured with an

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irregular cross section and other properties which enable them to closely mimic both the appearance and nature of human hair. Modacrylic fibers can be manufactured as 'tow' fibers, which are the only type of fibers which can be used in the manufacture of hair goods (wigs and hairpieces)." ¶9 [This statement does not appear in Oberhaus' his final signed affidavit. Next to this sentence, the words "need short explanation here" are written.]

"I am familiar with the production and use of Saran fiber, both now and prior to 1969-70. Saran is a synthetic fiber that cannot be produced as a 'tow' fiber and, for that reason, cannot be used in the hairgoods industry. Saran can only be made as a continuous filament fiber, which is not suitable for the manufacture of wigs." ¶11 [Next to this paragraph, an "X" was written in the margin, apparently by Oberhaus, and this paragraph does not appear in Oberhaus' final signed affidavit.]

"The primary use of saran fiber is in the manufacture of doll hair. Prior to and including 1969-70, it was the only fiber used to make doll hair. Currently, both Saran fibers and nylon fibers are being used for this purpose. In recent years, a method has been devised to produce Kanekalon fiber as a continuous filament fiber, and this fiber is now being used in the production of doll hair." ¶12 [Next to this paragraph, an "X" was written in the margin, apparently by Oberhaus, and this paragraph does not appear in his final signed affidavit. Next to the last sentence in this paragraph was written "OK."]

50. Oberhaus' January 24, 1991 signed affidavit (Ex. 1 to the Silverplate Aff.) did not contain any of the above statements. Instead, it stated:

"During the course and scope of my employment in the hairgoods and fiber industries, I have become familiar with the types of synthetic fibers that have been used in the production of wigs and hairpieces, both currently and during the period up to and including 1969-70." ¶7

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"Wigs and hairpieces during the period 1960 to date have most often been manufactured with human hair, modacrylic fibers, other fibers, or a combination of any of these filaments." ¶8 (emphasis added)

51. In May 1996, in response to the FOIA requests made by Bisceglie & Walsh on January 14, 1993, the defense received a FOIA release from FBI headquarters which included, among other things, a faxcopy of the signed (1/24/92) Oberhaus affidavit that is referred to in ¶ 50 above. (This signed copy of Oberhaus' affidavit which the defense received via the FOIA is appended hereto as Exhibit 11.) I note that this FOIA released version of Oberhaus' signed affidavit has a line printed across the top of it by a fax machine which indicates that it was sent from Kaneka America (New York) to 1-919-856-4487. Based on other documents I have seen, this telephone number (1-919-856-4487) was the fax number for the United States Attorney's Office in the Eastern District of North Carolina in January 1991. The FOIA release received by the defense in May 1996 did not include a copy of the draft affidavit which the government had asked Oberhaus to sign; however, it did include an FBI "302" concerning the December 4, 1990 interview of Oberhaus that was conducted by FBI agents Michael P. Malone and "Butch" Madden and Assistant United States Attorney, Eric Evenson. (A copy of this 302 is attached hereto as Exhibit 12.)

52. The defense has also learned that on or about December 5, 1990, agent Malone, AUSA Evenson, and an unidentified agent, interviewed two employees of Mattel Toys, Inc., in El Segundo,

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California, about the use of Saran fibers in the manufacture of doll hair. The two Mattel employees who were interviewed were Judy Schizas and Mellie Phillips. At the time of the interview, Schizas had been working for Mattel for approximately 18 years, and Phillips had been working for Mattel for approximately 32 years. (The Affidavit of Judith Schizas is attached hereto as Exhibit 13 (hereinafter "Schizas Aff."), and the Declaration of Mellie Phillips is attached hereto as Exhibit 14 (hereinafter "Phillips Decl.")).

53. In their interviews, both Schizas and Phillips confirmed that Saran fibers were used by Mattel in the manufacture of doll hair. However, they also told Agent Malone, AUSA Evenson and the other agent the following:

(a) Phillips told Malone and the others that Saran fibers were made in "tow" form. See Phillips Decl. (Ex. 14) at ¶ 4.

(b) According to the FBI 302s of their interviews, Schizas and Phillips provided information to Malone and the others that they were not aware that Mattel had ever made a doll with Saran hair fibers as long as 24 inches.

According to Phillips' 302:

It was her recollection that during the 1960's and early 1970's, MATEL [sic] used SARAN material in the manufacture of doll hair, particularly for the 7 ½ inch "Barbie Doll". The length of the hair (SARAN) for the Barbie was approximately three and one half to four inches in length. It was her best recollection that MATEL [sic] never made any other doll using SARAN type material. Also during this same time frame, it was her recollection that no other doll manufacturers used

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SARAN in the making of dolls.

Phillips Decl. (Ex. 14) (Phillips' 302 is attached to her declaration as Exhibit 1.) According to Schizas' 302:

She was of the opinion that the longest SARAN fiber used for doll hair by MATEL [sic] was approximately 18 inches in length. This would have been used on the doll, "DANCER ELLA", manufactured in approximately 1973. Prior to 1970, the longest length Saran used by MATEL [sic] was in the manufacture of "CHARMIN CHATTY" and was 16-17 inches in length and was manufactured between 1964-1966.

Schizas Aff. (Ex. 13) (Schizas' 302 is attached to her affidavit as Exhibit 1).

(c) Concerning her interview by Malone and the others, Schizas states:

7. During this interview, we discussed my background and my extensive doll collection. At some point during the interview, after I had told them about my extensive doll collection, we went to my home in Hawthorne, California, where the interview continued. We discussed generally the different types of synthetic fibers used to make doll hair, including Saran, nylon and Kanekalon. The agents told me that they were interested in any doll or dolls, made by Mattel or any other manufacturer, which might have had hair 22 or 24 inches long. I replied that, to my knowledge, no Mattel doll had ever been made with synthetic fibers that long, and that one might possibly find a doll hair fiber that long if the fiber were doubled over in the hair rooting process to produce two 11-12 inch hairs, but that I did not know of such a doll.

8. The agents told me that they were looking for a "ballerina" doll on a pedestal, but initially, they gave me little information to go on. I gave them several doll collectors' books to look through to see if they could find the doll that they were looking for. Finally, after telling them that I needed more information, they told me that they were looking for a blond-haired, ballerina doll, approximately 24 inches in height,

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which they believed played music and stood on a pedestal, and which would have been on the market in December 1969. I then retrieved from my collection a doll called "Dancerina," which was manufactured and sold by Mattel in 1969. Dancerina is a blond-haired "ballerina" doll, which does not stand on a pedestal, but which does play music. I also retrieved a doll called "Pollyanna."

9. The agents asked whether or not they could have some of the hair fibers from my Pollyanna and Dancerina dolls. I assented to this request and had to use a pair of tweezers to carefully pull the fibers out of the dolls so that they would not break while being pulled out.

10. During the course of the interview, the agents told me that the defense was contending that the 22 or 24 inch Saran fibers had come from a wig, and the agents told me that they simply wanted to show that it was "possible" for such a long fiber to come from a doll. I told the agents that while it was "possible," it was "not probable," because even if fibers of that length were used in a doll, it would be very difficult to pull out an entirely intact fiber because of the way that the fibers are rooted, and they had witnessed how I had to use tweezers to carefully extract the intact fibers from the Pollyanna and Dancerina dolls.

Schizas Aff. (Ex. 13) at ¶¶ 7-10.

54. None of the above information (including Schizas' and Phillips' 302s) was ever disclosed to the defense, nor was any of this information included in any filing submitted by the government in connection with the litigation involving MacDonald's 1990 Petition.

C. Agent Malone's Statements In His Supplemental Affidavit That (1) "Saran Is Only Manufactured As Continuous Monofilament," And (2) "Saran Cannot Be Manufactured As A 'Tow' Fiber, Which is Essential To The Cosmetic Wig Manufacturing Process" Are Demonstrably False.

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55. As noted above, in his supplemental affidavit, Agent Malone swore to the District Court that Saran did not have physical properties that made it suitable for use in human wigs. In addition to stating that Saran was not suitable because it did not have characteristics similar to human hair, Malone told the Court that

Saran . . . is only manufactured as a continuous monofilament, [and] Saran can not be manufactured as a "tow" fiber^[footnote 3], which is essential to the cosmetic wig manufacturing process.

Footnote 3: A "tow" is a large group of continuous filaments, without any definite twist, which is cut into definite lengths.

Malone Supp. Aff. (Rec.) (Ex. 2) at ¶ 7 (emphasis added).

56. Agent Malone cited no authority in support of the above-quoted statements which led anyone reading his affidavit to believe that Saran fibers could not have been used in human wigs because they "can not be manufactured" in a form that is "essential to the wig manufacturing process." The defense has located persons in the Saran fiber manufacturing industry and the wig industry who have confirmed that Saran indeed was made in "tow" form and that Saran fibers indeed were used in the manufacture of wigs for human use.

57. In connection with its investigation of Agent Malone's Saran fiber claims, the defense located Sue P. Greco, a 28-year employee of a company located in Odenton, Maryland that manufactured Saran fibers. This company conducted its business under the following names: The Saran Yarns Co.; National Plastics Products; Enjoy Fibers and Laminates Inc.; The Vectra

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Corp.; Chevron Fibers, Inc.; Amtech Co.; Ametek Inc. Special Filaments Division; Ketema, Inc. Special Filaments Division; and, Specialty Filaments Inc. Greco, who is a chemist, and who has been retained by the defense as an expert in this case, worked at this company (hereinafter referred to as "National Plastics") between 1966 and 1994, and held the positions of Lab Manager and R&D Assistant Manager in the Research and Development Department, and was also Technical Director of the Special Filaments Laboratory. (Attached hereto as Exhibit 15 is the Affidavit of Sue P. Greco, hereinafter referred to as "Greco Aff.")

58. According to Greco, during the period she was employed at National Plastics, the company manufactured Saran fibers in both monofilament and "continuous multifilament" ("tow") forms. Greco Aff. at ¶ 5. Greco also states that it was common knowledge within her company that National Plastics sold Saran multifilament ("tow") to entities which used the Saran fibers to manufacture wigs for human use. Greco Aff. at ¶ 6.

59. Greco reviewed agent Malone's affidavits and has determined that a number the statements made in his supplemental affidavit are false and misleading.

(a) As to Agent Malone's statements that Saran "is only manufactured as a continuous monofilament," and "can not be manufactured as a 'tow' fiber [footnote omitted] which is essential to the cosmetic wig manufacturing process[,] " Greco states that these statements are not true, noting that her company made Saran in both multifilament ("tow") form

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and monofilament form. Greco Aff. (Ex. 15) at ¶ 10(A). As further proof of this, Greco has provided Silverglate & Good with an actual "tow" of blond Saran fibers that was manufactured by her company. Greco Aff. (Ex. 15) at ¶ 10(A). (Photographs of this "tow" are attached to the Greco Aff. as Exhibit 6.)

(b) With respect to Agent Malone's assertions in ¶ 7 of his Supplemental Affidavit that "Saran is very straight . . . does not lay or drape like human hair, and is too shiny to resemble human hair," see also, Malone Supp. Aff. at ¶ 5 (Saran "does not resemble human hair"), Greco states that these statements are inaccurate and incomplete. She states that "[w]hile Saran fibers can be very straight, they can also be curled easily by the end-use manufacturer by running the fibers around a heated mandrel or quill and heat-setting them to make them curl. Greco Aff. (Ex. 15) at ¶ 10(B).

(c) Greco examined Agent Malone's treatment of the excerpts from the six textile reference books which Agent Malone purported to have consulted, and about which he stated: "None of these standard references reflect the use of saran fibers in cosmetic wigs; however, they do reflect the use of saran fibers for wigs for dolls and manikins, in addition to such uses as dust mops and patio screens. [footnote omitted]" Malone Supp. Aff. at ¶ 6. Greco, in response, states:

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I have reviewed each of the excerpts from these texts. They are incomplete and inaccurate since none of them contain any references to the fact that Saran fibers were used in the manufacture of human wigs during the 1960s and 1970s. In addition, I note that none of the texts appended to Agent Malone's Supplemental Affidavit (Ex. 4) state that Saran is made in "tow" form.

Greco Aff. (Ex. 15) at ¶ 10(C).

(d) Greco states that both the Stout text and the Dembeck text correctly state that Saran was used in the production of "wigs." Based on the fact that Saran was used to make human wigs, both of these texts are more complete than the texts cited by Agent Malone in his Supplemental Affidavit. Further, she knows of no reason why the Stout and Dembeck texts are not reliable and authoritative reference works on the subject of Saran fibers and the uses for such fibers. Greco Aff. (Ex. 15) at ¶ 10(D).

(e) Greco notes that the 22-inch and 24-inch Saran fibers which were found in the hairbrush at the crime scene "differ slightly from each other in chemical composition and color, which indicates that they did not originate from precisely the same manufacturing source or batch of raw materials." Malone Aff. (Ex. 2) at ¶ 12, pp. 6-7; Webb Aff. (Ex. 3) at ¶ 13. Greco states that dolls are generally manufactured with fibers all of the same color, whereas human wigs often contain a blend of different colored fibers for the purpose of making the wig appear more realistic and natural. She states that this slight difference in the color of these fibers and their long lengths (24" and 22"),

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is an indication that these fibers most likely came from a wig. Greco Aff. (Ex. 15) at ¶ 10(E).

60. Finally, Greco states that the FBI has known for years that National Plastics and its successors manufactured Saran fibers. Greco states that on numerous occasions during the 1980s and the 1990s, the FBI and other government agents visited the National Plastics plant in Odenton, Maryland to observe the Saran fiber manufacturing process. In 1985, Greco herself participated in a tour of the manufacturing plant that was given to a group of six to eight male and female FBI agents. One of the agents on the tour was Lawrence Presley of the FBI Laboratory's Textile Fibers Department. Greco recalls that the agents on this tour were interested in synthetic fibers found at crime scenes and also fibers used in wigs and other disguises. During the tour, Greco gave the agents Saran hair swatches consisting of a set of ten to twelve different colored bundles of straight, untwisted Saran fibers, each about 1/4 inch in diameter and four inches long, hung onto a single central chain. Subsequent to this tour, Greco recalls sending miscellaneous fiber samples, including samples of Saran fibers every couple of years, until 1991 or 1992, to Lawrence Presley at the FBI Laboratory. Despite knowing that National Plastics manufactured Saran fibers, the FBI never contacted Greco, nor to her knowledge did it contact anyone else who worked at National Plastics, in connection with its Saran fiber investigation in the MacDonald case. Greco Aff. (Ex. 15) at ¶¶ 11-15.

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61. In addition to Greco, the defense has located numerous other individuals in the Saran fiber and wig manufacturing industries who state that Saran fibers were used in the manufacture of human wigs before 1970:

(i) Norman Reich:

62. Norman Reich, former president and director of A & B Wig Company, formerly A & B Artistic Wig Corporation, hereinafter referred to collectively as "A & B Wig", has informed a defense investigator that during the 1960's and early 1970's, his company manufactured wigs with Saran fibers to be worn by humans. See Affidavit of Marie Schembri, attached hereto as Exhibit 16, at ¶ 4 (hereinafter "Schembri Aff."). A & B Wig manufactured these Saran wigs in a variety of colors, including blond, and, depending upon their length and style, some of these wigs utilized Saran fibers 22-inches or longer. Schembri Aff. at ¶ 4.

(ii) Jerry Pollak:

63. Jerry Pollak has confirmed the use of Saran fibers in wigs made for human use. See Affidavit of Jerry Pollak, attached hereto as Exhibit 17, at ¶¶ 4-5 (hereinafter "Pollak Aff."). From 1964 to 1970, Pollak was employed in a family business called Artistic Wig and Novelty Company. Id. at ¶ 2. From April 1970 to 1987, Pollak was employed as Vice President and a director of A & B Artistic Wig, the same entity in which Norman Reich was a principal. Id. Pollak recalls that both Artistic Wig and Novelty Company and A & B Artistic Wig manufactured wigs for human use with Saran fibers in a variety of lengths and hair

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colors, including blond. Id. at ¶ 4-5.

(iii) Robert Oumano:

64. Robert Oumano, President of Franco-American Novelty Company in Glendale, New York, a wholesaler of wigs and novelty items, has confirmed that during the late 1960's and early 1970's, wigs for human use were manufactured with Saran fibers.. Oumano states that during the early 1960s into the 1970s, Franco-American Novelty purchased Saran wigs to be worn by humans from Norman Reich's company (A & B Wig), and then sold these Saran wigs to retailers for sale to the general public. See Affidavit of Robert Oumano, attached hereto as Exhibit 18, at ¶ 4 (hereinafter "Oumano Aff."). Oumano recalls that these Saran wigs came in four colors: black, blonde, red, and grey. Id. at ¶ 6. The lengths varied between 18 to 26 inches. Id. at ¶ 7. After purchasing these wigs from A & B Wig, Oumano sold them to retailers such as novelty stores and joke shops, which in turn sold them to the general public. Id. at ¶ 4.

(iv) Jaume Ribas:

65. Jaume Ribas, the former chief executive officer of Fibras Omni, S.A., in Mexico City, and now deceased, also confirmed that Saran has been used to make human wigs. Fibras Omni, S.A., is one of the companies listed on page 210 of the Dembeck text, next to which the description reads: "Mexican monofil; dolls hair, wigs."

66. In a telephone interview with Ribas on November 24, 1993, Ribas told Harvey Silverglate and me that his company

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manufactured Saran during the period 1955 to 1975, pursuant to a license from Dow Chemical. Ribas told us that while he considered Saran to be too hard and too coarse a fiber to have been used extensively in commercial wigmaking, he knew for a fact that wigs had been made with Saran. Ribas explained that in 1967, he assisted the Museum of Anthropology and History in Mexico City by making approximately 100 wigs for what he called "dummies" in various diorama-types of exhibits.

67. Ribas stated that the people who made these wigs for the Museum normally made wigs by hand out of human hair. He also told us that occasionally Saran wigs were made for pageants, and he stated that he had a couple of dozen wigs made for school plays and theaters. As an example, he explained that for a "pastorela" (Christmas pageant) at the Museum of Colonial Art, he had Saran wigs made for all of the angels and shepherds in the pageant, and that the wigs for the angels contained blond Saran fibers. Ribas further told us that he had no way of determining whether any of these Saran wigs still exist.

68. On November 11, 1993, Ribas sent one of the Saran wigs that had been used in dioramas at the Museum of Anthropology and History, to Lucia Bartoli, coordinator of the MacDonald Defense Committee. See Affidavit of Lucia Bartoli, attached hereto as Exhibit 19, at ¶ 13 (hereinafter "Bartoli Aff."). On November 15, 1993, Bartoli shipped the wig she had obtained from Ribas to Silverglate & Good's offices in Boston. Bartoli Aff. at ¶ 14. This wig is dark brown/black in color and has fibers up to 25-

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inches in length. A photo of this wig is attached hereto as Exhibit 20. The wig is presently in the possession of Silverplate & Good and is available to the Court or the government for inspection and testing.

69. On or about November 19, 1993, the fibers from the Ribas wig were tested by John Lennhoff of Analytical Answers, Inc., in Woburn, Massachusetts, to confirm that they are made of Saran. Using Micro-Fourier Transform Infrared Spectroscopy (FTIR), Lennhoff confirmed that the fibers in the Ribas wig are indeed Saran. (Attached hereto as Exhibit 21 is the 11/19/93 report from Lennhoff.)

70. In addition to locating the persons referred to in ¶¶ 62-68 above, who manufactured and/or sold Saran wigs, the defense has located a number of persons who manufactured and sold Saran fibers. All of these persons were employed by National Plastics or one of its predecessors or successors, the same employer that Sue Greco worked for in Odenton, Maryland. These persons, all of whom are familiar with Saran fibers, recall that National Plastics sold Saran fibers to wigmakers during the 1950s into the 1970s. In addition, they dispute Agent Malone's supplemental affidavit with respect to his claims that the physical characteristics of Saran make it unsuitable for use in cosmetic wigs for humans and that Saran was not made in "tow" form.

(v) Samuel Walter Umansky:

71. Samuel Walter Umansky was employed during the years 1952-1958 as a technical sales associate by Saran Yarns Company

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("SYCO"), which later conducted business under the name National Plastics Products. See Affidavit of Samuel Walter Umansky, attached hereto as Exhibit 22, at ¶ 2 (hereinafter "Umansky Aff.").

72. Umansky states that during the period when he was employed by SYCO, the company sold Saran fibers in multifilament ("tow") form, in a variety of colors, including blond, to a number of different manufacturers, for use in wigs for human cosmetic use, including Grand Wigs, Ben Wigs, Artistic Wig, Myer Jacoby, the Dawbarn Brothers, and A&B Wig Company. Id. at ¶ 7. Umansky states that during the course of his employment at SYCO, he personally observed Saran wigs that were made to be worn by humans. Id. at ¶ 11(a).

73. In addition to selling Saran fibers directly to the wig manufacturing companies, Umansky also recalls that SYCO sold saran multifilament to intermediary manufacturers who pre-treated and curled the Saran and then sold it to wigmakers. Id. at ¶ 9.

74. Umansky reviewed Malone's Supplemental Affidavit and had the following comments:

(a) First, Umansky states that Malone's assertions that Saran can be manufactured only as a continuous monofilament and cannot be manufactured as a tow fiber are "untrue." Id. at ¶ 11(a). Umansky states that his company manufactured Saran in multifilament ("tow") form and sold it to wigmakers in this form. Id.

(b) Second, Umansky disputes Malone's claim that Saran

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fibers are unsuitable for wigmaking because they are very "straight." Umansky states that Saran fibers very readily take and retain a permanent curl, and that the invention of Saran cosmetic wigs was largely predicated upon the ease with which Saran fibers can be curled and styled. *Id.* at ¶ 11(b).

(c) Finally, Umansky points out that Malone's statement that Saran does not lay or drape like human hair and does not resemble human hair is refuted by the fact that Saran fibers have been used in the manufacture of wigs for humans, and that even doll hair is meant to resemble human hair. *Id.* at ¶ 11(c).

(vi) Frank Applebaum:

75. Frank Applebaum, who was employed at National Plastics between 1939 and 1987, and who worked in a number of different departments there, including Research and Development, Manufacturing, and Sales and Marketing, who is now deceased, stated that National Plastics made Saran fibers in monofilament, multifilament and continuous tow forms. *See* Affidavit of Frank Applebaum, attached hereto as Exhibit 23, at ¶¶ 5-6 (hereinafter "Applebaum Aff."). Applebaum recalled that the continuous multifilament Saran was made in a full-range of hair colors, including light or platinum blond. Applebaum further stated that National Plastics worked with a number of wig manufacturers, including Globe Wig, World Wig, and A & B Wig, in the development of continuous multifilament Saran fibers for use in wigs. *Id.* at

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¶ 7. In the course of his work at National Plastics, he recalled having seen wigs made for human use that were manufactured with Saran fibers by Globe Wig and A&B Wig. *Id.* at ¶ 8

76. In addition to all of the foregoing, it has also been brought to my attention that agent Malone and Brian Murtagh, the latter who was co-counsel for the government at trial in this case, co-authored an article titled "'Fatal Vision' Revisited: The MacDonald Murder Case," which appeared in the June 1993 issue of The Police Chief. (A copy of this article is attached hereto as Exhibit 24.) In this article, Malone and Murtagh reviewed the case in detail including the evidence presented at trial and the claims raised by MacDonald in his 1990 petition. With respect to the latter, both Malone and Murtagh acknowledged the "crucial" significance of the Saran fibers found at the crime scene if it were determined that these fibers were from a human wig which did not originate from the MacDonald household:

The unidentified "wig" fibers were crucial to MacDonald's defense because of where they were found and because they supposedly "linked" Helena Stoeckley to the crime scene. . . .

The defense scenario alleged that at some point during the crimes, Helena Stoeckley, wearing a blond wig, answered the kitchen telephone in the MacDonald residence. If actual unidentified human "wig" fibers, which did not originate from the MacDonald household,

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were found in the hairbrushes, this would tend to corroborate Stoeckley's presence and would be "exculpatory" to the government's case.

The Police Chief/June 1993 at 23.


Philip G. Cormier

Signed and sworn to before me this 17th day of April, 1997, at Boston, Massachusetts.

Philip G. Cormier
Notary Public, Commonwealth of Massachusetts

My commission expires: _____

TABLE OF EXHIBITS

| | |
|------------|--|
| Exhibit 1 | Affidavit of Michael P. Malone, 2/14/91 |
| Exhibit 2 | Supplemental Affidavit of Michael P. Malone, 5/21/91 |
| Exhibit 3 | Transcript of Oral Argument before the United States Court of Appeals, 2/5/92, pp.48-49 |
| Exhibit 4 | Post-Argument letter filed by defense with Court of Appeals, 2/6/92 |
| Exhibit 5 | Reply letter filed by Government, 2/10/92 |
| Exhibit 6 | Correction to reply letter filed by Government, 2/11/92 |
| Exhibit 7 | Bisceglie FOIA Request letter #1, 1/14/93 to DOJ Criminal Division, FBI FOIA Division, and FBI Headquarters |
| Exhibit 8 | Bisceglie FOIA Request letter #2, 1/14/93 to DOJ Criminal Division and FBI Headquarters |
| Exhibit 9 | Letter from Marshall R. Williams re. FOIA request with attached Dembeck and Stout text excerpts, 4/30/93 |
| Exhibit 10 | Affidavit of Harvey A. Silverglate |
| Exhibit 11 | Signed Affidavit of A. Edward Oberhaus, Jr., 1/24/92, received via FOIA May 1996 |
| Exhibit 12 | FBI 302 of interview with Oberhaus, received via FOIA May 1996 |
| Exhibit 13 | Affidavit of Judith Schizas |
| Exhibit 14 | Declaration of Mellie Phillips |
| Exhibit 15 | Affidavit of Sue P. Greco |
| Exhibit 16 | Affidavit of Marie Schembri |
| Exhibit 17 | Affidavit of Jerry Pollak |
| Exhibit 18 | Affidavit of Robert Oumano |
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| Exhibit 22 | Affidavit of Samuel Walter Umansky |
| Exhibit 23 | Affidavit of Frank Applebaum |
| Exhibit 24 | Article by Brian M. Murtagh and Michael P. Malone, "Fatal Vision Revisited: The MacDonald Murder Case," in <i>The Police Chief</i> / June 1993 |

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NORTH CAROLINA
FAYETTEVILLE DIVISION

UNITED STATES OF AMERICA,)

v.)

JEFFREY R. MacDONALD)

No. 75-26-CR-3
90-104-CIV-3-D

AFFIDAVIT OF SUE P. GRECO

I, Sue Penn Greco, being first duly sworn, state under oath the following:

1. I am the president of Pengra Spectro-Analytics, Inc., 424 Schley Road, Annapolis, Maryland, 21401. Pengra Spectro-Analytics, Inc., is a materials analysis company specializing in instrumental analyses of polymers and polymer components through the use of a variety of analytical instruments and processes, including Fourier Transform Infrared Spectroscopy (FTIR). I have been retained as an expert witness by Silverplate & Good, counsel for Jeffrey R. MacDonald.

2. I hold a Bachelor of Science degree in Chemistry from Western Reserve University. The following is a brief summary of my qualifications and background which are set forth more fully in the curriculum vitae that is appended hereto as Exhibit 1. Between 1966 and 1994, I was employed at a manufacturing company located in Odenton, Maryland. This company conducted business from the 1940s to 1996 under the following names: The Saran Yarns Co.; National Plastics Products; Enjoy Fibers and Laminates Inc.; The Vectra Corp.;

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Chevron Fibers, Inc.; Amtech Co.; Ametek Inc. Special Filaments Division ; Ketema, Inc. Special Filaments Division; and Specialty Filaments, Inc. This series of entities will be referred to hereinafter collectively as "National Plastics and its successors."

3. While employed at National Plastics and its successors, I held positions in the following departments approximately during the years indicated: (1) 1966 - 1982: Research and Development ("R&D") Lab Manager and R&D Assistant Manager for Enjay Fibers, The Vectra Corp., and Chevron Fibers, Inc.; (2) 1983 - 1994: Technical Director for Ametek and Ketema Special Filaments Division. While holding these positions, my responsibilities included quality control, manufacturing and customer problem resolution, new product development, and current product maintenance.

4. During the period I worked at National Plastics and its successors, the company manufactured a number of products made from various polymers, including fibers made from a substance known as "Saran." "Saran" is the licensed trade name for a series of polymers invented by the Dow Chemical Company. Saran is a copolymer made from at least 80% vinylidene chloride monomer, with the remaining 20% (for fiber and film end-use) consisting of vinyl chloride comonomer at 10 - 15% and additives, such as colorants, stabilizers, and plasticizers at 5 - 10%. Saran can be manufactured in many different forms, which include (in

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addition to fibers) films (e.g., Saran wrap) and, with different co-monomers, coatings which are often used to create waterproof barriers on substrates such as cardboard boxes.

5. As a result of my 28 year period of employment at National Plastics and its successors, I am familiar with the manufacturing methods used to produce Saran fibers and with the many end-uses for Saran fibers. National Plastics and its successors manufactured Saran fibers in both monofilament and continuous multifilament forms during the period I was employed there. Saran "monofilament" consists of a single individual fiber which is packaged on a spool, cone, or tube. Saran "continuous multifilament" consists of a bundle of untwisted, unentangled fibers which are packaged on a spool, cone, or tube. This bundle of filaments, being neither twisted nor entangled for cohesion in downstream processing, is commonly referred to as a "tow." The length of a tow is limited only by the form of packaging and the capacity of the package. A "tow" can reach several miles in length, depending on the packaging. National Plastics and its successors manufactured Saran continuous multifilament for several different products, including synthetic hair fiber.

6. The Saran fibers for hair products manufactured by National Plastics and its successors were produced by what is commonly referred to as a melt-spinning process, which consists of the following steps:

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First, Saran resin, stabilizers, and colorants are fed into a heated screw extruder. The extruder mixes these materials together, and the heat in the extruder causes the resin to melt and the viscosity to decrease, enabling extrusion to occur.

Second, the melted liquid Saran is extruded through holes in a "spinnarettte." A spinnarettte is a type of die that has numerous holes in it to create the Saran filaments or fibers, all of which, after solidification in a cooling tank, can remain grouped together as a unit or can be separated into smaller groups. Each of these groups of fibers constitutes a tow, or bundle, of continuous multifilament (untwisted and unentangled).

Third, after solidification in a cooling tank, the fibers pass through a series of rollers known as "draw rolls." As the fibers are processed through the draw rolls, they are heated and stretched four to six times their original length. This is done to increase the strength of the fibers. The fibers are then put through a mechanical stabilizing process called "heat setting."

Finally, at the end of the production line, the multifilament bundle or tow is wound onto a spool or tube, as explained in ¶ 4 above.

7. During the course of my employment at National Plastics and its successors, I became familiar with many of the end-uses for Saran fibers made by our company. These

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end-uses included wigs for human use, doll hair, and other textile applications. During the period I was employed by National Plastics and its successors, the company sold spools of Saran multifilament to numerous manufacturing companies. While I was not employed in the sales or marketing departments, it was common knowledge within the company that during this time period National Plastics and its successors were selling Saran fibers to entities which used the fibers to manufacture wigs for human cosmetic use.

8. I have read the Affidavit of FBI Agent Michael P. Malone (2/14/91) (Exhibit 2 hereto) (hereinafter "Malone Aff."), the Affidavit of FBI Agent Robert F. Webb (2/13/91) (Exhibit 3 hereto) (hereinafter "Webb Aff."), and the Supplemental Affidavit of Agent Michael P. Malone (5/21/91) (Exhibit 4 hereto) (hereinafter "Malone Supp. Aff."), all of which, I have been informed, were previously filed in court by the government in this case. Among other things, these affidavits summarize laboratory examinations conducted by the FBI on certain blond Saran fibers that were reported found at the crime scene in a clear-handled hairbrush, and they also contain statements to the effect that Saran fibers could not be, and were not, used in the manufacture of wigs worn by humans.

9. In addition to reviewing the affidavits mentioned above, I have also reviewed various FBI laboratory records pertaining to the physical examinations conducted by the FBI

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Laboratory on the blond Saran fibers which form the basis for the aforementioned Malone and Webb affidavits. These materials were provided to me by one of Dr. MacDonald's attorneys, Philip G. Cormier, who informed me that they were obtained from the government via Freedom of Information Act (FOIA) requests. These materials include, among other things, handwritten laboratory notes and the spectrographic results of Fourier Transform Infrared Spectroscopy (FTIR) analyses conducted by the FBI on the blond Saran fibers. (These notes and spectrographic results are appended hereto as Exhibit 5.) Infrared analyses such as "dispersive infrared analysis" or FTIR permit the identification of the chemical composition of an item by subjecting the item to infrared radiation (heat) and obtaining a spectrum which is unique to that item's chemical composition. FTIR can be used to analyze even smaller samples than can be analyzed using the "dispersive infrared" method of analysis. I have used dispersive infrared analysis since 1966 for the identification of polymers and resins, and I have used FTIR for the same purpose since 1985. I am experienced in the use of both dispersive infrared analysis and FTIR, and in the interpretation of the spectra which are produced by both of these techniques of infrared analysis.

10. Based on my experience as an analytical polymer chemist, my longstanding employment in the Saran fiber industry, and my experience with FTIR analysis, I have

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concluded that a number of the statements in Agent Malone's affidavit are false and misleading insofar as they are based on incomplete data and are very limited in their discussion of Saran fibers. For example:

(A) Agent Malone states in ¶ 7 of his Supplemental Affidavit (Ex. 4) that Saran "is only manufactured as a continuous monofilament," and "can not be manufactured as a 'tow' fiber [footnote omitted] which is essential to the cosmetic wig manufacturing process." These statements are not true. Saran is not manufactured "only" as a continuous monofilament. As noted above in ¶¶ 5-7, National Plastics and its successors manufactured Saran fiber in a variety of forms, including continuous multifilament ("tow") form. As further proof that National Plastics and its successors manufactured "tow" in Saran form, I have attached hereto as Exhibit 6 two color photographs of a blond "tow" consisting of curled Saran fibers. This type of continuous multifilament or "tow" was produced by National Plastics and its successors, wound onto spools, and sold to a hair products manufacturer which curled the fibers and repacked them. This particular example was returned to National Plastics and successors and was kept in its lab as an exemplar. It was given to me in March 1996 by the management of the Ketema Incorporated

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Special Filaments Division at my request, and I forwarded this "tow" sample to Philip G. Cormier at Silverglate & Good.

(B) Agent Malone asserts in ¶ 7 of his Supplemental Affidavit (Ex. 4) that "Saran is very straight . . . does not lay or drape like human hair, and is too shiny to resemble human hair." See also, Malone Supp. Aff. at ¶ 5 (Saran "does not resemble human hair"). These statements are inaccurate and incomplete. While Saran fibers can be very straight, they can also be curled easily by the end-use manufacturer by running the fibers around a heated mandrel or quill and heat-setting them to make them curl. Moreover, as noted above, Saran has been used to make wigs worn by humans. Saran has also been used for doll hair which is intended to mimic real human hair.

(C) In support of his conclusion that Saran fibers were not used in the manufacture of wigs worn by humans, Agent Malone appended to his Supplemental Affidavit (Ex. 4) copies of excerpts from six textile reference books which Agent Malone purported to have consulted, and about which he stated: "None of these standard references reflect the use of saran fibers in cosmetic wigs; however, they do reflect the use of saran fibers for wigs for dolls and manikins, in addition to such

-9-

uses as dust mops and patio screens. [footnote omitted]" Malone Supp. Aff. at ¶ 6. I have reviewed each of the excerpts from these texts. They are incomplete and inaccurate since none of them contain any references to the fact that Saran fibers were used in the manufacture of human wigs during the 1960s and 1970s. In addition, I note that none of the texts appended to Agent Malone's Supplemental Affidavit (Ex. 4) states that Saran is made in "tow" form.

(D) I have been provided also with excerpts from two textile reference works which, I have been informed by Dr. MacDonald's counsel, were obtained via the FOIA from the Department of Justice. These two texts are: Evelyn E. Stout, Introduction to Textiles. John Wiley & Sons, Inc.: New York. 3rd Ed.

Adeline A. Dembeck, Guidebook to Man-Made Textile Fibers and Textured Yarns of the World. The United Piece Dye Works: New York. 3rd Ed.

Copies of the excerpts from the Stout and Dembeck texts are appended here to as Exhibits 7 and 8, respectively.

(I) I note that the Dembeck text (Ex. 8) has the following stamp on it which indicates that it is copy number two of this reference book in the FBI Laboratory:

F.B.I. LABORATORY
M.A. UNI. - 3931
COPY NO:2

(ii) Both the Stout text (Ex. 7) and the Dembeck text (Ex. 8) correctly state that Saran was used in the

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production of "wigs." See Stout at p. 238 and Dembeck at p. 210. Based on the fact that Saran was used to make human wigs, both of these texts are more complete than the texts cited by Agent Malone in his Supplemental Affidavit, and I know of no reason why the Stout and Dembeck texts are not reliable and authoritative reference works on the subject of Saran fibers and the uses for such fibers. I also note that both of these Stout and Dembeck reference texts list Enjay Fibers and Laminates Company as a producer of Saran. I worked for Enjay, which was the immediate successor company to National Plastics Products Co.

(E) In his affidavits, Agent Malone states that the FBI found a total of five blond Saran fibers on a clear-handled hairbrush found at the crime scene. These items are identified as follows:

Q-46 -- identified by Malone as two blond fibers, one 24-inches long and the other 9-inches long. See Malone Supp. Aff. (Ex. 4) at ¶ 5.

Q-49 -- identified by Malone as one light blond fiber, 22-inches long. See Malone Supp. Aff. (Ex. 4) at ¶ 5.

Q-131A -- identified by Malone as containing two light blond Saran fiber

-11-

fragments (no length indicated). See

Malone Aff. (Ex. 2) at ¶ 12.

Agent Malone further states that Q-46 and Q-49, the two exhibits which contain the 24-inch and 22-inch blond Saran fibers taken from the clear-handled hairbrush, "differ slightly from each other in chemical composition and color, which indicates that they did not originate from precisely the same manufacturing source or batch of raw materials." Malone Aff. (Ex. 2) at ¶ 12, pp. 6-7; Webb Aff. (Ex. 3) at ¶ 13. Malone describes the 24-inch fiber in Q-46 as "blond," and the 22-inch fiber in Q-49 as "light blond." Malone Aff. (Ex. 2) at ¶ 12, pp. 5,7. The fact that Q-46 and Q-49 are reported by Malone and Webb to differ slightly in their color and chemical composition indicates that the source of these 24-inch and 22-inch fibers was from a product made with a color blend of fibers. Unlike doll hair, which to my knowledge is generally manufactured with fibers that are all of the same color, human wigs often contain a blend of different colored fibers for the purpose of making the wig appear more realistic and natural, since the natural hairs on a human head are not uniform in color. This reported slight difference in color between Q-46 and Q-49, which is reflected in the slight difference in the chemical composition of the fibers as shown in the FTIR spectra generated by the FBI (see Exhibit 5,

-12-

hereto), indicates that these fibers most likely came from a wig.

11. As noted in ¶¶ 12-14 below, the FBI has been aware for some time that National Plastics and its successors manufactured Saran fibers. In addition, I note that one of the reference works which was appended as Exhibit 3 to Agent Malone's Supplemental Affidavit lists National Plastics Products Co. as a manufacturer of Saran. Yet, the FBI has never contacted me, nor, to my knowledge, contacted anyone else at National Plastics and its successors, to inquire about the use of Saran fibers in human wigs in connection with the MacDonald case.

12. On several occasions during the 1980s and 1990s, FBI agents and officials from other federal agencies such as the Environmental Protection Agency toured the manufacturing plant of National Plastics and its successors in Odenton, Maryland, due to the plant's close proximity to Washington, D.C. In or about 1985, I participated in a tour of the manufacturing plant given to six to eight male and female FBI agents. Although I cannot recall at this time whether I specifically told these agents during the tour that Saran fibers manufactured by National Plastics and its successors were used in the manufacture of human wigs, it is my recollection that these agents were interested in synthetic fibers found at crime scenes, such as hairs, threads, or carpet fibers, and also fibers used in wigs and other

-13-

disguises. I recall that one participant on the tour was Lawrence Presley of the FBI Laboratory's Textile Fibers Department.

13. The tour in which I participated with the FBI agents included a discussion of fibers made from Saran, nylon, polypropylene, and polyesters. In addition, during the tour, I gave the FBI agents a box of fiber and filament samples which included Saran fibers manufactured for different end uses such as industrial fabrics, carpeting, and Saran hair swatches, the latter of which were the types of fibers that would have been used in human wigs.

14. The Saran hair swatches supplied to the FBI consisted of a set of ten to twelve different-colored bundles of straight, untwisted Saran fibers, each about 1/4 inch in diameter and 4 inches long, hung onto a single central chain. Two or three other very similar color exemplar chains containing hair swatches made from other polymers such as nylon and polyolefin, also were supplied to the FBI at that time.

15. Subsequent to this tour, I recall sending miscellaneous fiber samples, including nylons, olefins and


-14-

Saran, to Lawrence Presley at the FBI Laboratory, every few years until 1991 or 1992.



Susan Penn Greco

Signed and sworn to before me this 11 th day of April, 1997,
at Annapolis, Md.



Notary Public

My commission expires

TINA BLATTENBERGER
NOTARY PUBLIC STATE OF MARYLAND
My Commission Expires March 5, 2007

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Exhibit 1

Sue Penn Greco
424 Schley Road
Annapolis, MD 21401
(410) 267-6814

Curriculum Vitae

Academic Background

1954 B.S., Chemistry, Western Reserve University, coursework
in Mass Spectroscopy, X-Ray Spectroscopy
1955 Textile Technology (duPont), Philadelphia Textile
Institute
1967 Interpretation of Infrared Spectra, Am. Chem. Soc.
Spectrometric Identification of Organic Compounds, Am.
Chem. Soc.
1968 Interpretation of NMR Spectra, American Chemical Soc.
Analytical Instrumentation, Sadtler Research Labs
Infrared Spectroscopy, Soc. For Appl. Spect.
1969 Modern Organic Synthesis, American Chemical Soc.
Applied Polymer Science, American Chemical Soc.
Thermal methods of Analysis, American Chemical Soc.
1974 Modern Liquid Chromatography, Waters Assoc.
1989 Electrically Conductive Polymers, Ctr. for Prof. Adv.

Professional Work History

1952-4 Western Reserve University, Spectrochemical Lab,
Technician
1955-8 E.I. duPont deNemours and Co., Inc., Technical Service
Laboratory, Textile Fibers Division, Technologist
1966-82 Chevron Fibers/ Vectra Corp., R&D Assistant Manager/
Laboratory Manager, dealt with products including
industrial and textile fiber production using
polyethylene, polypropylene, Saran, and several types
of nylon
1982- FTI, Consultant
present
1983-94 Ketema Inc., Special Filaments Division, Technical
Director, dealt with products including brush filament
made from several types of polyester and several types
of nylon; industrial filament, made from polyethylene,
polypropylene, Saran, polyesters and nylons; Saran hair
products
1993-97 Pengra Spectro-Analytics Lab, Owner

Specialized Professional Experience

Analytical polymer chemistry
Chemical spectroscopy, including emission, ir, UV/VIS, x-ray,
mass

Thermal analyses including DSC, TGA, TMA, dilute solution and melt viscosity of polymers, moisture and volatiles determinations
Molecular weights by GPC (size exclusion) and through correlation with viscosities
Microscopy including photomicrography, particle size and shape
Polymer engineering in extrusion processes (melt, solution)
Flammability and physical testing of parts, fibers, fabrics
Correlation of data to solve industrial/ manufacturing problems, upgrade processes, develop new products/ processes
Colorant chemistry and analyses including dyes and pigments
Polymer stabilization correlations and analyses in relation to product lifetime, special properties

Professional Societies

American Chemical Society
Society for Applied Spectroscopy
American Society for Testing and Materials
American Association of Textile Chemists and Colorists
Society of Plastics Engineers
Society for the Advancement of Material and Process Engineering

Publications

Company proprietary reports

Exhibit 2

UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NORTH CAROLINA
(FAYETTEVILLE DIVISION)

UNITED STATES OF AMERICA : Crim. No. 75-26 Cr.-3
 :
 v. :
 :
 JEFFREY R. MACDONALD :

AFFIDAVIT OF MICHAEL P. MALONE

I, Michael P. Malone, being first duly sworn, state under oath the following:

1. I am the senior examiner of the Hairs and Fibers Unit (HFU) of the Federal Bureau of Investigation (FBI) Laboratory which is located in Washington, D.C.

2. The FBI Laboratory is one of the largest crime laboratories in the U.S. and conducts thousands of forensic examinations annually for all types of duly authorized law enforcement agencies, both foreign and domestic, including all of the forensic examinations for the FBI.

3. My duties at the FBI Laboratory include the examination and comparisons of hairs, fibers and related materials, trial testimony concerning the results of these examinations, the supervising of evidence technicians in the processing of evidence, conducting and supervising the processing of actual crime scenes, and the training of law enforcement personnel, including state and local crime laboratory examiners.

4. I am a graduate of Towson State University (1968) in Baltimore, Maryland and of James Madison University (1970) in Harrisonburg, Virginia, where I received a Master's Degree in Biology. In 1968, I became a secondary school teacher and

subsequently taught both biology and general science in Maryland, Virginia and Florida.

5. In November of 1970 I entered the FBI as a Special Agent and was subsequently assigned to the Cincinnati and New York Field Offices, where I worked bank robbery, kidnapping and organized crime matters. In September of 1974 I was assigned to the HFU of the FBI Laboratory where I have remained ever since. My first year at the FBI Laboratory consisted of intensive training in the field of hairs and fibers. At the end of that period I was designated by the Director of the FBI as a Forensic Microscopist specializing in trace evidence.

6. Since 1974 I have worked over 4000 criminal cases in the field of hairs and fibers, have examined the known hair samples of over 10,000 individuals, have conducted hundreds of thousands of examinations of unknown hairs and fibers and have testified over 350 times in both State and Federal Courts in 44 states, the District of Columbia, the U.S. Virgin Islands and the Commonwealth of the Northern Mariannas.

7. Since 1974 I have also worked as an instructor at the forensic program of the Office of Special Investigations (OSI) of the Air Force in Washington, D.C., have been an instructor at the Hair and Fiber Schools conducted at the FBI Academy in Quantico, Virginia, and have been a guest lecturer on the role of hair and fibers in homicide investigations in numerous local, state, national and international law enforcement symposia throughout the U.S. I have lectured to National Academy classes, FBI In-service

classes and the staff of the Drug Enforcement Administration at the FBI Academy. I have also been a guest lecturer at the Law School of the University of Notre Dame, as well as giving numerous lectures at the FBI Laboratory itself. I have also worked numerous major serial murder cases, major homicide cases and have personally conducted or supervised the processing of crime scenes both in the U.S. and in Mexico.

8. I have written articles on the role of hair and fibers in homicide investigations, which have been published in the Law Enforcement Bulletin. I was invited by the National Institute of Justice (NIJ) to be the only forensic contributor to the Multi-Agency Investigative Team (MAIT) Manual, the primary manual devoted to the investigation of serial murder crimes and which has been distributed by the NIJ to virtually every law enforcement agency in the U.S. My articles have also been published in a basic textbook of forensic science entitled "Criminalistics-An Introduction to Forensic Science."

9. I became involved with the case of United States v. Jeffrey MacDonald in March of 1990 when I was assigned to do certain hair and fiber examinations and re-examinations pertaining to selected items of evidence associated with the MacDonald case.

10. The basic premise of all trace evidence examinations arises from the "Transfer Theory of Locard", which simply states that all individuals are constantly exchanging hairs, fibers and other trace evidence with their immediate environment. This trace evidence can be tremendously important in associating an individual

with a crime scene, a murder weapon or another individual or specific environment. The examination of the microscopic and optical properties of hair and fiber evidence can be critical to another basic premise of forensic science, the comparison of an unknown item to a known source. In conducting a forensic examination, and this is true for all fields of forensic science, an unknown item is compared directly to a known source, and normally, one of two conclusions can be reached as to the origin of the unknown items. Firstly, if the unknown is different or dissimilar to the known source, then that unknown item did not originate from or cannot be associated with that known source. Secondly, if the unknown is the same as, is similar to, or exhibits the same individual microscopic characteristics as the known source, then that unknown item is consistent with coming from that particular known source. Only in certain instances (i.e. firearms, DNA, etc.) can this be done with absolute certainty; however, with respect to hairs and fibers, the most that can be said is that the unknown can be "strongly associated" to the known source. In the absence of a known source, unless the item is highly unusual, any conclusion reached as to the origin of an unknown item would be mere speculation. It should be noted that the presence of unknown or unmatched fibers on an individual or his clothing is so common that normally, it is not considered forensically significant and therefore is not normally reported in a FBI Laboratory Report.

11. An individual may exchange both hairs and fibers with

people and objects in his environment. Hairs and fibers transferred from their source to another item may then be transferred again through subsequent physical contact. These hairs and fibers found on items other than their original source are called "foreign" hairs or fibers, in that they are foreign to the substrata on which they are found. "Foreign" fibers are not necessarily foreign to the household or environment in which they are found. My experience has shown that even if an item or a place, such as a residence or vehicle, is cleaned, a large number of the "foreign" hairs and fibers can remain. Furthermore, it has also been my experience that it is not unusual to find hairs and fibers on an individual that did not originate from that individual. Therefore, in the absence of comparable known sources, no conclusion can be conclusively reached as to the specific origin(s) of these "foreign" hairs and fibers. Any conclusion so reached would amount to speculation and would probably be scientifically invalid.

12. In connection with this matter I examined a clear handled hairbrush, specimen Q-131A (CID Exhibit K, E-323). (See Photo Exhibit 1) I removed two light blond saran fiber fragments (Q-131A) from this brush.¹ (See Photo Exhibit 8) I also examined one light blond saran fiber (Q-49) (See Photo Exhibits 5-7) and two blond saran fibers (Q-46) (See Photo Exhibits 9-11) which had been previously removed from this brush (CID Exhibit K, and E-323). It

¹See affidavit of Special Agent examiner Robert Webb concerning his identification of fibers by instrumental analysis.

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should be noted that specimens Q-46 and Q-49 were re-submitted to the FBI Laboratory in 1990 in a sealed plastic bag, which contained a cardboard box which had markings that included the notation "Synthetic Hairs E-35, J, K, E-35, and E-321" as well as "Q-43-Q54 PMS". (See Photos Exhibits 2-3) The former notations have been identified to me by retired Army CID chemist Janice S. Glisson as being in her hand writing, the latter I recognize as being the FBI Laboratory markings pertaining to the inventory of these items in connection with examinations conducted by retired FBI examiner Paul M. Stombaugh.

Specimen Q-46 was further contained in a cardboard slide mailer bearing the marking "Q-46 PMS" and "K Synthetic hair blond", the former I recognize as the markings of Paul Stombaugh, the latter was identified to me by Janice Glisson as being in her hand writing. (See Photo Exhibit 9.) Specimen Q-49 is similarly marked and was similarly identified to me by Janice Glisson (See Photo Exhibit 5). Further, I have examined the laboratory bench notes of Janice Glisson contained in the Affidavit of John J. Murphy at page 25, and have been advised by Janice Glisson that her references in her notes, to "blond" "synthetic striated fibers made to look like hairs" in Exhibit K(E-323), relate to specimens Q-46 and Q-49 ("synthetic hairs blond"). It should be noted that the instrumental analysis of specimens Q-46 and Q-49 by FBI Special Agent Examiner Robert Webb, whose report I have read, reflects that Q-46 and Q-49 are composed primarily of "saran". Further, it is noted that these fibers do differ slightly from each other in

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chemical composition and color, which indicates that they did not originate from precisely the same manufacturing source or batch of raw materials. Accordingly, I have described specimen Q-49 as being a "light blond saran fiber" (See Photo Exhibit 7) and specimen Q-46 as being "two blond saran fibers". It should be further noted that two light blond saran fibers which I personally removed from the clear handled hairbrush, (Q-131A, CID #K and E-323) are consistent with the light blond saran fiber previously removed from the clear handled hair brush by Janice Glisson and mounted on the Q-49 Slide. All of these saran fibers (Q-46, Q-49, Q-131A) are consistent with the type of fibers normally used in the production of doll hair and are similar to a known sample of saran doll hair from the FBI Laboratory reference collection (See Photo Exhibit 12). These fibers (Q-46, Q-49, Q-131A) are not consistent with the type of fibers normally used in the manufacture of wigs, and based on my comparisons, are not like any of the known wig fibers currently in the FBI Laboratory reference collection.

In connection with this matter I examined doll hair from a "Pollyana" doll (K48), a "Dancerina" doll (K49), a doll previously identified as belonging to Colette MacDonald (K50) and compared the "hair" from these dolls to the afore-mentioned hair-like fibers found in the clear handled hairbrush (Q-131A) and in the blue handled hairbrush (Q-132). The hair-like fibers from these hairbrushes were dissimilar to "hair" from these dolls and could not be associated with these particular dolls.

Specimen Q-48, consists of a single cardboard slide mailer

previously marked "Q-48 PMS" by Paul Stombaugh; and "K grey synthetic", by Janice Glisson, which was also found in the cardboard box containing specimens Q-43 to Q-54 marked "Synthetic hairs" by Janice Glisson (See Photo Exhibits 2, 3, 13, 14, 15). The slide on which specimen Q-48 was mounted, contains a grey delustered modacrylic [modified acrylic] fiber, previously removed from the clear handled hairbrush (Q-131A) and exhibits the same microscopic and optical properties as the grey delustered modacrylic fibers found in the K-47 fall previously owned by Colette MacDonald² (See Photo Exhibits 16-18B).

13. In connection with this matter I examined a blue handled hairbrush, specimen Q-132 (CID Exhibit #J and E-322) (See Photo Exhibit 19) I removed a grey delustered modacrylic fiber (Q-132) (See Photo Exhibit 29) from this item. This fiber (Q-132) exhibits the same microscopic and optical properties as the grey delustered modacrylic fibers found in the composition of the previously mentioned K47 fall of Colette MacDonald, and accordingly, is consistent with having originated from the K47 fall (See Photo Exhibits 29-31).

I also examined two black polyvinyl chloride (PVC) fibers (Q-43 and Q-44) (See Exhibits 21-27) which had previously been removed from this blue handled hair brush (CID Exhibit #J and E-322).³ The two black PVC fibers Q-43 and Q-44 when re-submitted to the FBI Laboratory were contained in the cardboard box described above, in

²See Affidavit of Special Agent Robert Webb.

³See Affidavit of Special Agent Robert Webb.

slide mailers marked " Q-43 and Q-44 PMS" by Paul Stombaugh and "J-black synthetic (?)" by Janice Glisson (See Photo Exhibits 22, 25). I have been further advised by Janice Glisson that the reference J-black (synthetic) which appears in her notes (Murphy Affidavit Exhibit 1, at 36) pertains to specimens Q-43 and Q-44, as does the reference in her typed laboratory report number P-PA-D-C-FP-82-70-R24, paragraph number 7 which states: " Examination of the dark strands from Exhibit E-322 showed same to be synthetic fibers". These fibers are consistent with the type of fibers which were once used in the production of wigs. The source of these PVC fibers (Q-43, Q-44) is unknown at this time.

14. In connection with this matter I examined debris from the rug underneath the trunk and body of Colette MacDonald, specimen Q-79 (CID #E-303, GX-327) (See Photo Exhibits 32-52). A brown pubic hair of Caucasian origin was previously removed from this debris and mounted on a glass microscope slide (See Photo Exhibits 41-46A). This hair (Q-79) does not appear to have been forcibly removed, and exhibits the same individual microscopic characteristics as the specimen K-22 pubic hair sample of Jeffrey MacDonald (See Photo Exhibits 46B-46I). Accordingly, this pubic hair is consistent with having originated from Jeffrey MacDonald. Also removed from this debris (Q-79) were a brown cotton thread (See Photo Exhibits 47-49) and a bluish-black rayon/acrylic yarn (See Photo Exhibits 50-52). The source of these items is not known at this time. The presence of the pubic hair, the brown cotton thread, or the bluish-black rayon acrylic yarn on a bedroom rug in

an occupied residence is not, by itself, forensically significant.

15. In connection with this matter I examined debris removed from the bedspread from Kristen MacDonald's bedroom, specimen Q-87 (CID Exhibit #52NB, GX-362) (See Photo Exhibits 53-60). In this debris (Q-87) were a black dog hair (See Photo Exhibits 55,56,57,58) and two brown and white animal hairs (no suitable roots) (See Photo Exhibits 59-60). The source of these animal hairs is unknown at this time.

Also, in this debris (Q-87) was a brown hair of Caucasian origin; however, this hair does not possess sufficient characteristics to be of value of significant comparison purposes (See Photo Exhibits 56D-56G).

16. In connection with this matter I examined debris removed from the right bicep area of Colette MacDonald's pajama top, specimen Q-88 (CID Exhibit #E-209) (See Photo Exhibits 61-67). In this debris (Q-88) was a bluish-black wool fiber (See Photo Exhibits 63-65). The source of this fiber is unknown due to the absence, at this time, of known standards for comparison purposes. Also found in this debris (Q-88) was a white wool fiber (See Photo Exhibit 66). This white wool fiber exhibits the same microscopic characteristics as the white wool fibers found in the composition of the shag rug from the master bedroom of the MacDonald residence, specimen K33 (See Photo Exhibit 67), and is consistent with having originated from the K33 rug.

The presence of this white wool fiber (Q-88) on the body of

Colette MacDonald is consistent with her body having been in contact with this white woolen rug.

17. In connection with this matter I examined debris removed from a piece of wood, specimen Q-89 (CID Exhibit #E-205, GX-307) (See Photo Exhibits 68-86). One fine bluish-black wool fiber was found in this Q-89 debris (See Photo Exhibit 80). The source of this Q-89 bluish-black wool fiber is not known, due to the absence at this time of known standards for comparison.

Also found in this Q-89 debris was a fine green wool fiber (See Photo Exhibit 81). At this time the source of this green wool fiber is not known, due to the absence of known standards for comparison.

Also found in this Q-89 debris were white wool fibers (See Exhibits 82, 83, 85). These (Q-89) fibers exhibit the same microscopic characteristics as white wool fibers that were found in the composition of the specimen K33 shag rug, from the master bedroom, (See Photo Exhibits 84 and 86) and accordingly, these fibers are consistent with having originated from the specimen K33 shag rug. The presence of these rug fibers on the club is consistent with the club having been in contact with the rug in the master bedroom at some point in time.

Also found in this Q-89 debris from the club were white animal hairs (no roots). At this time, the source of these animal hairs is not known, due to the absence of known standards for comparison. Further, the species of the animal hairs can not be conclusively determined due to the absence of the hair root; however, due to the

presence of other microscopic characteristics, a cat cannot be eliminated as the possible source of these hairs.

18. In connection with this matter I examined debris removed from around the mouth area of Colette MacDonald, specimen Q-100 (CID Exhibit E-3) (See Photo Exhibits 96-104). Two dark purple wool fibers were found in this Q-100 debris (See Photo Exhibits 101-102). The source of these dark purple wool fibers is not known due to the absence, at this time, of known standards for comparison. [It should be noted the dark purple wool fibers are in addition to the two purple cotton threads identical to the purple cotton threads of specimen Q-12, previously identified by Paul Stombaugh.]

Also found in this Q-100 debris was a blue polyester cotton yarn (See Photo Exhibit 103). This yarn (Q-100) exhibits the same microscopic and optical properties as the blue polyester and cotton yarns composing the pajama top of Jeffrey MacDonald, specimen Q-12, (See Photo Exhibit 104) and accordingly, this yarn is consistent with having originated from the Q-12 pajama top of Jeffrey MacDonald. The presence of this blue polyester cotton yarn in the mouth area of Colette MacDonald is most consistent with her face having been in contact at some time with the blue pajama top (Q-12) of Jeffrey MacDonald.

I compared the dark woolen fibers present in specimens Q-88, Q-89 and Q-100, described above, and found them to be dissimilar to each other in certain optical properties.

19. It should be noted that Photo Exhibits 116, 117 and 118 depict Colette MacDonald wearing dark colored sweaters and a dark colored hat which were not submitted for comparison purposes.

20. It should be further noted that Exhibit 150, the "also submitted" 8 millimeter film purportedly taken in the MacDonald Quarters and Fort Bragg on Christmas morning 1969, depicts Kimberly and Kristen MacDonald wearing multi-colored stocking caps, and playing in sleeping bags, neither of which were submitted for comparison purposes.

21. In connection with this matter I examined debris removed from a quilt from Kimberly MacDonald's bedroom, Specimen Q-93 (CID Exhibit E-124) (See Photo Exhibits 87-95). One brown limb hair (See Photo Exhibits 94-95) of Caucasian origin was found in this Q-93 debris; however this limb hair does not possess sufficient characteristics to be of value for significant comparison purposes. It should be noted that limb hairs are normally not deemed to be of value for comparison purposes.

22. In connection with this matter I examined debris removed from Colette MacDonald's left hand, specimen Q-119 (CID Exhibit E-5) (See Photo Exhibits 105-108). Four brown limb hairs of Caucasian origin were found in this Q-119 debris (See Photo Exhibits 107A,108); however, these limb hairs do not possess sufficient characteristics to be of value for significant comparison purposes.

23. In connection with this matter I examined debris removed from the blue top sheet from the floor of the master bedroom of

the MacDonald residence, specimen Q-125 (CID #E-211) (See Photo Exhibits 109-115). One brown body hair of Caucasian origin was found in this Q-125 debris (See Photo Exhibits 113-115). This hair was forcibly removed and appears (See Photo Exhibit 113) to have a piece of skin tissue attached to the basal area of the hair; however, this body (trunk) hair does not possess sufficient characteristics to be value for significant comparison purposes. It should be noted that body hairs, with the exception of pubic hairs, are normally not deemed to be of value for comparison purposes.

Further your affiant sayeth not:

Michael P. Malone
Michael P. Malone
Special Agent
Federal Bureau of Investigation

Wilmington, D.C.

Subscribed and sworn to before me this 14th day of February 1991.

Lucia C. Stappert
Notary

Dry Commission
Expires: 8/31/92

Exhibit 3

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NORTH CAROLINA
FAYETTEVILLE DIVISION

UNITED STATES OF AMERICA :

v. :

No. 75-26-CR-3 .

No. 90-104-CIV-3-D

JEFFREY R. MACDONALD :

AFFIDAVIT OF ROBERT F. WEBB

I, Robert F. Webb, being first duly sworn, state under oath the following:

1. I am a Special Agent - Forensic Chemist of the Federal Bureau of Investigation (FBI) Laboratory which is located in Washington, D.C. I am assigned to the Materials Analysis Unit (MAU).

2. My duties at the FBI Laboratory include the examination and comparison of paints, plastics, polymers, cosmetic materials and related substances, trial testimony of the results of these examinations, the supervising of laboratory technicians, conducting and supervising the processing of crime scenes, and the training of law enforcement personnel, including state and local crime laboratory examiners.

3. I am a graduate of the University of California, Davis Campus, where I received a Bachelor of Science degree in Biological Science in 1969. I then worked as a chemist in a private consulting Laboratory in Sacramento, California.

4. In February, 1971, I entered the FBI as a Laboratory technician in the same specialized field to which I am currently assigned.

5. In April, 1973, I entered the FBI as a Special Agent and was subsequently assigned to the Washington Metropolitan and Charlotte Field Offices where I was assigned to general criminal, white collar crime and bank fraud and embezzlement investigations.

6. In March, 1976, I was assigned to the MAU of the FBI Laboratory where I have remained ever since. Since that time I participated in a training period of

approximately one year under the supervision of other examiners in my specialized field. During this training period I was instructed in procedural technique in handling forensic evidence and how to operate the various scientific instruments available to me in the MAU. I have attended several specialized schools and seminars relative to my field. These schools have been conducted by colleges and universities, product manufacturers, scientific instrument companies and by the FBI Laboratory. In the more recent past I have participated as a lecturer in these same type of specialized schools and seminars. I continually review current literature, reference materials and research papers relative to my specialized field.

7. Since 1977 I have had the practical experience of examining several thousand items of evidence like those I have examined in this case.

8. I have testified as an expert witness in the analysis of paints, plastics, polymers and cosmetics approximately 150 times in both Federal and State courts in 29 states, the District of Columbia and throughout the Caribbean Islands.

9. I became involved with the Jeffrey MacDonald case in October, 1990, when I was assigned to do certain chemical composition analyses pertaining to selected items of evidence associated with the MacDonald case.

10. In general, a synthetically manufactured fibrous material can be chemically analyzed with the use of a scientific instrument called an Infrared Spectrophotometer. This type of instrumentation has been used in the forensic science community for over 35 years and offers a high degree of scientific certainty to chemical analyses.

11. The particular type of instrument used in this case is a Fourier Transform Infrared Spectrophotometer (FTIR) with a Bach-Shearer FTIR Microscope accessory attachment and Sirius 100 computer controller.

12. All items examined by me in this case were flattened with a Carver press for five(5) minutes at 12,000 pounds per square inch (psi). Each item was then suspended across a one(1) millimeter aperture for analysis.

13. In connection with this matter I examined one(1) fiber identified to me as Q49 and two(2) fibers identified to me as Q46. Each of these fibers was determined to be polyvinylidene chloride, also known as "saran".

It is noted the Q46 fibers do differ slightly in chemical composition from the Q49 fiber. This slight difference indicated the respective fibers did not originate from precisely the same manufacturing source or batch during the manufacturing process.

14. In connection with this matter I examined one(1) fiber identified to me as Q48 and fibers identified to me as K47. Each of these fibers was determined to be a mixture of acrylonitrile and vinyl chloride/vinylidene chloride, also known as "modacrylic" fibers. These fibers match each other in chemical composition and did, therefore, originate from the same manufacturing source and particular product or from separate products composed of raw materials from the same source or batch.

15. In connection with this matter I examined one(1) fiber identified to me as Q43 and one(1) fiber identified to me as Q44. Each of these fibers was determined to be polyvinyl chloride mixed with a "plasticizing" material. "Plasticizing" additives are chemical substances added to soften synthetic materials.

It is noted the Q43 fiber differs slightly in the amount of "plasticizer" present when comparing this fiber with Q44. This slight difference indicates the respective fibers did not originate from precisely the same manufacturing source or batch during the manufacturing process.

Robert F. Webb

Robert F. Webb
Special Agent-Forensic Chemist
Materials Analysis Unit
Federal Bureau of Investigation
Laboratory
Federal Bureau of Investigation
Washington, D.C. 20535

Signed and Sworn to before me this 13th day of February, 1991

Marilyn J. Bartuch

Notary Public

My commission expires 1-1-95

Exhibit 4

UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NORTH CAROLINA
(FAYETTEVILLE DIVISION)

UNITED STATES OF AMERICA : Crim. No. 75-26 Cr.-3
: :
v. : :
: :
JEFFREY R. MACDONALD :

SUPPLEMENTAL AFFIDAVIT OF MICHAEL P. MALONE

I, Michael P. Malone, being first duly sworn, state under oath the following:

1. I am the senior examiner of the Hairs and Fibers Unit (HFU) of the Federal Bureau of Investigation (FBI) Laboratory which is located in Washington, D.C.

2. I am the same Michael P. Malone who executed an affidavit in the above-captioned case, on February 14, 1991.

3. I have read the Reply Brief of the petitioner in this case which was filed on May 14, 1991.

4. With respect to the numerous references in the Reply Brief to "the 22-inch synthetic blond wig hairs" allegedly found in the clear handled hair brush (Exhibit K, E-323), by Army Chemist Janice Glisson, I can state with certainty that no 22-inch synthetic blond wig hairs were found in Exhibit K, E-323, or in any other exhibit which I examined in this case (see my previous Affidavit). In this regard, my use of the term "wig" unless otherwise specified, means a head covering made of synthetic fibers or human hair, which substitutes for the wearer's own hair, and which is worn by a human being, usually female, for cosmetic purposes. It is my understanding based upon reading the pleadings in this case, that the petitioner contends that Helena Stoeckley

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owned a blond shoulder length wig (as defined above), which was further described as being "stringy". Further, it is my understanding that there is no record evidence as to whether this wig was composed of specific synthetic fibers or human hair. In any event, to the extent that petitioner contends that the "22-inch blond synthetic" fibers removed from Exhibit K, E-323 are consistent with having originated from a cosmetic blond wig allegedly owned by Helena Stoeckley, there is no factual or scientific basis for this conclusion. I base my statement on the following facts and observations.

5. With respect to Exhibits Q-46, Q-48 and Q-49, the microscopic slides previously identified by Janice Glisson as those now containing the striated blond synthetic fibers made to look like hairs, which she previously removed from Exhibit K, E-323 (see Glisson Affidavit at pp.3-4), I personally determined the lengths of the fibers mounted on these slides. I determined that Exhibit Q-46 contained two blond fibers which were of 24-inch and 9-inch lengths, respectively. Further instrumental analysis by SA Robert Webb of the Materials Analysis Unit (MAU) determined that these fibers were composed of saran. My own microscopic examination determined that these two blond saran fibers were striated, and one matched the FBI Laboratory's known saran doll hair reference exemplar (see photo exhibits 11 and 12 to my previous affidavit) and did not match any wig exemplar in the reference collection¹.

¹ The FBI Laboratory's reference collection of fibers has been maintained for over forty years. Among other items, it contains numerous samples from wigs, all of which I have personally examined

Similar examinations performed on Exhibit Q-49 revealed a single light blond striated saran fiber, which was 22-inches in length, and also did not match any wig exemplar in the FBI reference collection. Lastly, similar examinations performed on Exhibit Q-48, revealed a single grey, delustered, modacrylic fiber which was approximately 5-inches in length, and which matched modacrylic fibers removed from the K-47 hair piece or "fall" worn by Colette MacDonald. Therefore, I can state that the only blond synthetic fibers which are 22-inches or longer and which were removed from Exhibit K, E-323, are saran, which does not resemble human hair, and not modacrylic, which does resemble human hair.

6. In addition to performing physical examinations in this case, I have consulted numerous standard references (see Exhibits 1-6 attached to this affidavit) which are routinely used in the textile industry and as source material in the FBI Laboratory, concerning the industrial applications for fibers, including saran. None of these standard references reflect the use of saran fibers in cosmetic wigs; however, they do reflect the use of saran fibers for wigs for dolls and manikins, in addition to such uses as dust mops and patio screens.²

7. Further, based upon my own investigation and research in this case, I can state that saran has the following physical

and none of which revealed a known wig exemplar of saran. Rather all of the known wig exemplars are composed of polyvinyl chloride (PVC), modacrylic or human hair.

² Joseph, Introductory Textile Science, 1966, Holt Rinehart and Winston, Inc., at page 185 (attached as Exhibit 1).

characteristics which make it unsuitable for use in cosmetic wigs, in which the objective is to have the wig hair appear indistinguishable from natural human hair. Saran is very straight, is only manufactured as a continuous monofilament, does not lay or drape like human hair, and is also too shiny to resemble human hair. Lastly, saran can not be manufactured as a "tow" fiber³, which is essential to the cosmetic wig manufacturing process.

8. Based upon these factors described above, and in the absence of any evidence to the contrary, I conclude that the 22 and 24 inch blond saran fibers in this case are not cosmetic wig fibers.

9. Contrary to the statement reflected in the Reply Brief that I compared the saran fibers in this case with dolls which came from the MacDonald crime scene at Fort Bragg, without making an identification, I can state that none of the dolls which I examined came from the MacDonald crime scene at Fort Bragg, N.C. Nor did the dolls I examined belong to the MacDonald children, whose dolls, I understand, were disposed of by petitioner (see Kassab Affidavit at p.3).

10. With reference to the numerous assertions concerning the Transfer Theory of Locard which are contained in the Reply Brief I can state as follows: the Transfer Theory of Locard, an accepted scientific principle and the premise for all forensic trace evidence examinations, has been misinterpreted by petitioner.

³ A "tow" is a large group of continuous filaments, without any definite twist, which is cut into definite lengths.

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Simply stated, the theory explains that the hairs and fibers found on an individual are reflective of their most recent and immediate surroundings. This principle is particularly applicable to situations in which a body is in physical contact with an object such as a residential or automobile carpet. Based upon my review of the evidence in this case, including crime scene photos, it is indisputable that Colette MacDonald's body was last in contact with the shag rug in the master bedroom. Based upon my experience and training as a hair and fiber examiner, it is my opinion that rugs are conducive to the transfer and retention of foreign fibers. Further, since woolen fibers possess an outer layer of scales, they are among the fibers most readily transferable to surfaces such as rugs.

Further your affiant sayeth not:

Michael P. Malone
Michael P. Malone
Special Agent
Federal Bureau of Investigation

Subscribed and sworn to before me this 21 day of May 1991.

Patricia J. Anderson, Notary
Notary My Commission Expires on the
First Monday of January, 1994.

EXHIBIT 1