



U.S. Department of Justice

Criminal Division

*Terrorism and Violent Crime Section
601 D Street, N.W., Suite 6500
Washington, D.C. 20530*

Philip G. Cormier, Esquire
Silvergate & Good
83 Atlantic Avenue
Boston Massachusetts
02110-3711

September 13, 2001

Re: United States v. Jeffrey R. MacDonald

Dear Mr. Cormier:

This letter is in further reference to AFDIL Exhibit 112A which is the subject of your expert's September 7, 2001 report reflecting his microscopic examination of the nine hairs from that specimen originally mounted by the FBI on a slide marked "19 ½ L2082 Q96 PMS".

Prior to turning this exhibit over to the Armed Forces DNA Identification Laboratory (AFDIL) the original slide was examined by the FBI Laboratory and the four hairs present were compared to known exemplar hairs.¹ After receipt of this Q96 slide AFDIL designated it Slide 112A, and had it examined by Master Sergeant Graham of the Office of the Armed Forces Medical Examiner. Master Sergeant Graham, who has since retired, also reported finding four hairs which he described. The Divisibility and Suitability Assessment of February 2, 2000 furnished by AFDIL in regard to Slide 112A reflected the length of each of the four hairs², that all were divisible and suitable for mitochondrial DNA examination, and that hair 112A# 4, which had a root and adhering tissue, was also suitable for STR (nuclear) DNA examination.

By letter of April 2, 2001, Jacqueline Raskin, Supervisory DNA Analyst, AFDIL informed the parties of her attempt to start the processing of Sample 112A. Once the cover slip of the slide was removed, instead of the four hairs previously described by Master Sergeant

¹The Report of the examiner dated May 19, 1999 reflects that:

"A forcibly removed Caucasian head hair found on one of the Q96 resubmitted glass microscope slides, (labeled 19 ½ on the slide) exhibits the same microscopic characteristics as hairs of the K2 specimen. Accordingly, the hair is consistent with having originated from Kimberly MacDonald, the identified source of the K2 specimen. Two Caucasian head hair fragments found on the same slide are microscopically similar to hairs in the K2 specimen; however, these hairs are too limited for significant comparison purposes. A Caucasian body area hair found on this slide is not suitable for significant comparison purposes."

² # 1 = 31mm; #2 = 61mm; #3 = 27mm; and #4 = > 145mm.

Graham, Ms Raskin found that there were actually nine hairs of varying lengths, thicknesses, and shades of blonde/brown on this slide. Ms. Raskin requested to be advised how to proceed .

In your letter of April 10, 2001 you proposed that, in light of this development that these nine hairs undergo further microscopic examination by a qualified AFDIL microscopist to determine their physical characteristics before any DNA analysis of the hairs in this exhibit was conducted. My response of the same date agreed with your proposal, but further noted that as it was not clear whether or not the five additional pieces of hair were once part of the original four hairs, an attempt should be made to determine if this was the case. On April 24, Ms. Raskin advised us that AFDIL does not currently have the capabilities to perform microscopic hair examinations, and therefore AFDIL will not proceed with the DNA testing of Sample 112A until receipt of further instructions.³ On May 10, you enquired whether I had any objection to having these hairs examined by a defense microscopist in light of AFDIL's lack of microscopic examination capability? After further correspondence an agreement was reached on May 30 that examination of Sample 112A would be conducted at AFDIL, by a defense expert whom you would identify.

On August 6, 2001, nine unmounted hairs from Sample 112A, together with Master Sergeant Graham's photo documentation of the original slide, were made available to defense microscopist Dr. Peter DeForest at the co-located facilities of the Armed Forces Medical Examiner. No comparative microscopic examinations were conducted at AFDIL/AFME because neither organization has a comparison microscope. Hence, Dr. DeForest although he was eager to do so, was not able to match any of the fragments to each other.

As you know, I was present along with Ms. Raskin, while Dr. DeForest examined the nine hairs, now designated 112A (#1) through 112A (#9). After first measuring the hairs Dr. DeForest mounted each hair separately on slides.⁴ The hairs ranged in length from 1.6 cm to in excess of 12cm⁵. Therefore, in their current condition, and applying AFDIL Divisibility Guidelines, three of the hairs are now not divisible.⁶ Dr. DeForest further determined that all of the nine hairs were Caucasian head hairs, with the exception of 112A(#3) which he described as pubic or body hair. Dr. DeForest further advised that none of the hairs had a root, with the

³ DNA testing of Samples other than 112A continued.

⁴The one exception being hair 112A(#2), which broke into 1.6cm and 4.2cm pieces while being measured. As it was agreed that both fragments came from the same hair, they were mounted on the same slide.

⁵ 112A(#1) = 2.8cm; 112A(#2) = 1.6cm & 4.2cm; 112A(#3) = 1 cm; 112(#4) = 12+ cm
112A (#5) = 9.8cm; 112A(#6) = 10.1 cm; 112A(#7) = 6cm; 112A(#8) = 4 cm; and 112A (#9) = 2.5 cm.

⁶ 112A(#1), 112A(#3) and 112A(#9).

exception of 112A(#5)?

According to Dr. DeForest's report of September 7, 2001 clearly the fracturing of the hairs took place during the demounting process. However, based on a comparison of his approximate length measurements with those measurements made years earlier, Dr. De Forest concluded that there was no reason to believe that any hair was lost in the demounting process. Needless to say, I have no quarrel with Dr. DeForest assessment on these points. What I do take issue with is Dr. De Forest's recommendations that AFDIL's prior length standards for divisibility not be adhered to, and that in determining what sample size should be utilized, the AFDIL analysts should start with the most degraded hairs first to see whether the chosen size yields interpretable results. Dr. De Forest goes on to state:

The hair designated as number 9 would appear to be a good "worst case" sample to start with, since it appears to have been one of the most degraded segments. It is probably not divisible, as its (sic) total length is only about 2 to 2.5 cm. The results of testing this hair segment should facilitate decisions about the appropriate sample sizes for subsequent tests. Report at 3.

I do not agree with Dr. DeForest's priority of using the sample least likely to produce interpretable results, particularly when that sample is non-divisible. This approach strikes me as not being consistent with the provisions of District Court's order pertaining to preserving the samples to the fullest extent consistent with the resolution of the issues before the court. This is particularly the case since all of the small degraded fragments we now have must have originated from the original four hairs. I am told that it may be possible to microscopically determine that one or more of these degraded fragments was once part of, or matches, a divisible hair, which is not degraded, and is therefore suitable for DNA testing. It would make no sense, never mind the cost, to test the degraded non-divisible sample, when a suitable divisible remainder of the same hair is available. I believe this approach is not inconsistent with Dr. DeForest's view regarding the hair which he broke during his examination of 112A(#2).⁸ Accordingly, as an alternative to Dr. DeForest's recommendation, I propose to see if it is possible to re-associate or match the fragments to the original four hairs, before testing any degraded and non-divisible hair. I would propose to proceed in the following manner:

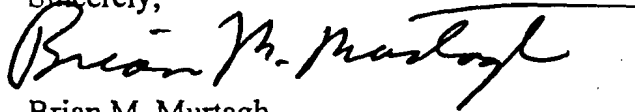
⁷As only the 14.5 cm hair, previously designated #4, had a root, the 9.8 cm hair now designated as 112A (#5) must be the remaining portion of that hair. It is also possible that one or more of the non-divisible fragments also originated from this hair.

⁸ I don't believe Dr. DeForest suggested testing the 1.6 cm fragment, rather than the 4.2cm fragment which he mounted on the same slide, because he knew it had once been part of the same hair.

1. AFDIL, if it has not already done so, will photo document each of the nine slides in their current condition, which were mounted by Dr. DeForest;
2. AFDIL will forward these nine slides to the FBI Laboratory;
3. The FBI Laboratory will, without remounting the hairs or otherwise altering the slides or their contents, conduct appropriate comparative microscopic examinations in an attempt to match or associate the nine hairs with each other, as well as report any observable indication of degradation of the hairs;
4. The FBI Laboratory will prepare a report of its examination, which will be furnished to the parties and to AFDIL;
5. Upon completion of the FBI examinations the nine slides will be returned to AFDIL;
6. Upon return of the nine slides to AFDIL by the FBI, AFDIL will report any alteration of the slides or their contents;
7. If requested by the defense, arrangements will be made for Dr. De Forrest to re-examine the nine slides in his own laboratory under the same conditions as the FBI;
8. If the parties are in agreement that a non-divisible fragment was once part of a divisible fragment, then the divisible fragment will be the sample used for DNA testing;
9. If the parties can not agree on the origin of a non-divisible hair fragment, or the priority in which the fragments should be tested, then the parties will bring the issue before the court for resolution.

Please let me know your position on this proposal. In the meantime I have instructed AFDIL to proceed with the testing of hairs other than Sample 112A.

Sincerely,



Brian M. Murtagh
Deputy Chief
Terrorism & Violent Crime Section

cc: AUSA Eric Evenson
Ms. Jacqueline Raskin (Footnote 1 deleted)