Appendix B

U.S. Department of Justice

Federal Bureau of Investigation

Washington, D. C. 20535-0001

MICROSCOPIC HAIR COMPARISON ANALYSIS

The following reflects an agreement between the FBI and the Innocence Project and the National Association of Criminal Defense Lawyers of what the science of microscopic hair examinations supports.

The scientific analysis of hair evidence permits a well-trained examiner to offer an opinion that a known individual can either be included or excluded as a possible source of a questioned hair collected at a crime scene. Microscopic hair analysis is limited, however, in that the size of the pool of people who could be included as a possible source of a specific hair is unknown. An examiner report or testimony that applies probabilities to a particular inclusion of someone as a source of a hair of unknown origin cannot be scientifically supported. This includes testimony that offers numbers or frequencies as explicit statements of probability, or opinions regarding frequency, likelihood, or rareness implicitly suggesting probability. Such testimony exceeds the limits of science and is therefore inappropriate.

Error Type 1: The examiner stated or implied that the evidentiary hair could be associated with a specific individual to the exclusion of all others. This type of testimony exceeds the limits of the science.

Error Type 2: The examiner assigned to the positive association a statistical weight or probability or provided a likelihood that the questioned hair originated from a particular source, or an opinion as to the likelihood or rareness of the positive association that could lead the jury to believe that valid statistical weight can be assigned to a microscopic hair association. This type of testimony exceeds the limits of the science.

Error Type 3: The examiner cites the number of cases or hair analyses worked in the lab and the number of samples from different individuals that could not be distinguished from one another as a predictive value to bolster the conclusion that a hair belongs to a specific individual. This type of testimony exceeds the limits of the science.

Appropriate: The examiner's testimony appropriately reflected the fact that hair comparison could not be used to make a positive identification, but that it could indicate, at the broad class level, that a contributor of a known sample could be included in a pool of people of unknown size, as a possible source of the hair evidence (without in any way giving probabilities, an opinion as to the likelihood or rareness of the positive association, or the size of the class) or that

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the contributor of a known sample could be excluded as a possible source of the hair evidence based on the known sample provided. An opinion as to the likelihood or rareness of a positive association may be appropriate in certain cases in which the examined hair samples display unusual or distinct characteristics, *e.g.*, repeated artificial treatments resulting in color variations along the length of the hair, hairs that have been crushed, broken, burned or damaged in some distinctive manner, or hairs that display specific characteristics associated with certain diseases such as pili annulati, monilethrix, or trichorrhexis nodosa.

11/9/2012