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## DECLARATION OF HUMA NASIR

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I, Huma Nasir, M.S., D-ABC, hereby declare as follows:

### Background

1. I am above the age of 18 and fully competent to give this declaration. I received a B.S. in Biological Sciences from the University of New Orleans in 2000 and an M.S. in Pharmaceutical Sciences with a concentration in Forensic Serology and DNA from the University of Florida in 2006. I am also a member of the American Academy of Forensic Sciences (AAFS) and a board-certified Molecular Biology Diplomate at the American Board of Criminalistics (ABC).
2. I am a co-author of several articles relating to DNA testing and forensic casework in the Journal of Forensic Science and the Journal of the Association of Genetic Technologists, including the articles “Y-Chromosome STR system, Y-PLEX™ 12, for forensic casework: Development and Validation” and “Development and validation of the Y-PLEX™ 5, a Y-chromosome STR genotyping system, for forensic casework.” I have been actively engaged with the seminars and presentations of my colleagues in the field of forensics, and I have attended numerous symposia and conferences related to topics and advancements in forensic science.
3. Between 2001 and 2007, I was employed as a Forensic DNA Analyst at ReliaGene Technologies, Inc. (ReliaGene) in New Orleans, LA. ReliaGene was a private, accredited Forensic DNA Laboratory and research company. It specialized in human genetic identification for forensic and parentage applications. The firm routinely performed the following types of testing: polymerase chain reaction (PCR), restriction fragment length polymorphism (RFLP), mitochondrial DNA sequencing, and autosomal as well as Y-chromosome DNA testing (STR and Y-STR). At ReliaGene, I conducted scientific and forensics analysis on multiple forms of biological evidence in forensic cases utilizing PCR based DNA testing following standard operating procedures for forensic DNA analysis. I tested and analyzed a range of forensic samples, including blood stains, seminal fluid, urine, saliva, bone, teeth, hair shafts, follicles, cigarette butts, soda/beer cans, weapons, fetal tissue, mummified tissue, stamps, envelopes, and fingernails.
4. When ReliaGene was acquired by Orchid Cellmark in Dallas, Texas, I continued my employment with Cellmark. Between 2008 and 2015, I was employed at Orchid Cellmark/Cellmark Forensics as a Senior Forensics Analyst, Supervisor of Forensics, Technical Leader and Assistant Technical Director of Forensic Casework. Cellmark

Forensics was a private, accredited DNA laboratory that performed forensic and paternity DNA testing, both for law enforcement and other governmental agencies, as well as for private clients. Cellmark's accreditations included the American Society of Crime Lab Directors/Laboratory Accreditation Board (ASCLD/LAB-International), the Texas Department of Public Safety, American Association of Blood Banks (AABB), and the New York State Department of Health. Analysts at Cellmark, including myself, underwent blind proficiency testing in accordance with these accreditations.

5. As the Technical Leader at Cellmark, I was responsible for the management of the laboratory and technical problem solving of analytical methods. I was responsible for method evaluation and assessing new analytical procedures for the laboratory. I performed in depth case reviews and provided expert witness testimony in court cases. I possess in-depth expertise with all forensic DNA testing methodologies in use at the lab, including autosomal STRs, mini-STRs, Y-STRs and mitochondrial DNA testing.
6. In 2015, the Cellmark Forensics lab was closed, and all operations were transferred to a sister laboratory, Bode Cellmark Forensics located in Lorton, VA. I served as a Senior DNA Analyst with Bode Cellmark Forensics until 2017. This laboratory, like Cellmark, is a private, accredited forensic laboratory that specializes in performing DNA testing in forensic cases for both civil and law enforcement agencies as well as defense attorneys and the Innocence project. Bode Cellmark is also accredited by ANSI-ASQ National Accreditation Board (ANAB), the Texas Department of Public Safety (TX DPS), Maryland State Department of Health and Hygiene and the New York State Department of Health.
7. Bode Cellmark Forensics has successfully obtained DNA profiles in thousands of cases. These cases include numerous post-conviction homicide cases. Included in this group of successful DNA testing cases are multiple, decades-old post-conviction cases where biological evidence is degraded or in which other laboratories, whether pre-trial or post-conviction, had previously consumed substantial portions of the evidence to be tested through attempted serology and/or DNA or other forensic analysis. Bode also performed DNA testing for the TX DPS crime lab and DNA profiles obtained by Bode for TX DPS cases were routinely reviewed and uploaded into CODIS by the TX DPS lab.
8. Over the course of my career working in forensic laboratories, I have processed and analyzed thousands of forensic samples. I have testified over 100 times as an expert in molecular biology and/or forensic DNA analysis in over 20 states.
9. Currently, I am employed as the Vice President of Operations for a CLIA certified clinical diagnostic laboratory called DevLab *bio*, where I oversee clinical testing, including COVID-19 testing for the detection of the novel SARS coronavirus.

10. A copy of my curriculum vitae detailing my experiences and credentials, as partially described in most relevant part herein, is attached to this declaration as Exhibit A.

### **Referral Question and Preliminary Opinion**

11. I have been asked by counsel for Ms. Patricia Rorrer to review the DNA testing performed in Ms. Rorrer's case by several agencies including Pennsylvania State Police Bethlehem Regional Laboratory (PSP Bethlehem Lab), Orchid Cellmark and the FBI. I write this declaration to provide my professional opinion regarding the DNA testing previously performed and whether the hair evidence tested in this case allegedly from the "driver's side seatback" was the original hair evidence collected from the Katrinak vehicle. In my opinion, detailed chain of custody records for the hair evidence as well as all hair evidence packaging labels and photographs need to be reviewed in order to determine if the correct hair evidence collected from the Katrinak vehicle was tested and produced results issued by the PSP Bethlehem and FBI labs.

### **Materials Reviewed and Observations About Previous DNA Testing**

12. The evidence in question in this case consists of hairs collected from the "driver's side seatback" (also referred to as "front seat backrest) from the Katrinak vehicle. Hair evidence in forensic cases can be tested by employing one of two techniques: Autosomal Short Tandem Repeat (STR) testing of nuclear DNA using PCR (polymerase chain reaction) or mitochondrial DNA (mtDNA) testing. Autosomal PCR testing of nuclear DNA is only possible if there is a root attached to the hair. The root cells contain nuclear DNA that can be tested using the traditional STR (short tandem repeat) methods. If root material is not present on a hair, traditional autosomal STR testing cannot be performed since there is no nuclear DNA. In that case, a specific type of testing called mitochondrial DNA (mtDNA) testing can be utilized for testing the shaft of the hair. Mitochondrial DNA testing is less discriminatory than nuclear testing because it is not possible to identify a single person using mtDNA testing. However, it is advantageous when a root is not present on a hair because a hair shaft contains mitochondria and can be tested for mitochondrial DNA for possible identification.
13. In preparation for this declaration, I have reviewed the previous DNA testing conducted in this case by the PSP Bethlehem Lab under case number B95-1794-C, and by the FBI under File number 7A-PH-76596. I have also reviewed the DNA testing conducted by Orchid Cellmark lab under case number M07-0012. After reviewing the materials provided, I have made the following observations:

- (a) The hairs collected from the “front seat backrest” were first examined by Thomas Jensen of the PSP Bethlehem Lab in 1995. PSP Bethlehem lab report dated August 2, 1995 signed by Thomas Jensen, Forensic Scientist Supervisor, states that a microscopic examination was performed on the hairs collected from the “front seat backrest”. The microscopic examination revealed presence of “apparent dried blood” on some of the hairs examined. Thomas Jensen sent the hairs for DNA testing to the FBI lab.
- (b) Although a microscopic examination was performed by Thomas Jensen on the hairs collected from the “front seat backrest”, there is no record of an examination of the hairs for possible root material attached to any of these hairs in 1995. In a forensic case, when hair evidence is examined under a microscope, identification of two characteristics is of the utmost importance in order to determine DNA testing methods that can be utilized. The hair must be identified as human or nonhuman hair. Secondly, the hair must be examined for possible root material to determine what type of DNA testing is possible for testing the hair. As mentioned above, the type of testing performed depends on the presence or absence of the hair root.
- (c) In 1995, Thomas Jensen noted the apparent reddish staining on the outside of some of the hairs and requested DNA testing by the FBI lab on 3 unmounted hairs. He stored 3 additional hairs and mounted them with permanent mount. However, he failed to document any observations regarding the presence or absence of any root material on any of the mounted or unmounted hairs. In my opinion, not recording the presence or absence of hair roots is highly incompetent and jeopardized any testing that could be performed on the hair evidence. It was gross negligence to not record presence or absence of roots and in the absence of any notes regarding presence of root, it can be reasonably inferred that hair roots were not present.
- (d) When the hair evidence was received at the FBI lab in 1995, Harold Deadman from the FBI lab performed DNA testing on the swabbing of the outside of the unmounted hairs but did not perform any DNA testing on the hair root portion. If root material was present on the hairs, Mr. Deadman should have mentioned the presence of root material and should have performed PCR DNA testing on the root material. In the materials provided to me, there is no specific record by Deadman of presence or absence of any visible roots on the mounted or unmounted hairs. Since presence of root material was not mentioned and PCR testing was not performed on the root material, it can be reasonably inferred that hair roots were not present.
- (e) In the material provided to me, there is an FBI report that clearly shows there were no roots attached on the hairs from the driver’s side headrest. The report states:

*“Found in car on driver’s headrest, three hairs nice inches long, no roots attached, and blood on two of the three. PSP Lab reported hair not that of victims. Presently, at FBI lab for DNA analysis...”*

14. Patricia Rorrer’s head hairs were collected in November 1995 and transported to the Bethlehem Lab.
15. Two years later, in May 1997, FBI lab performed mitochondrial DNA testing on one of the three hairs from driver’s side headrest. The mtDNA profile was consistent with Patricia Rorrer. If root material were present on these hairs, there would not be a need to conduct mitochondrial DNA testing. Traditional STR testing would’ve been performed on the root end of the hair and mitochondrial DNA testing would not be required.
16. In September 1997, FBI lab also performed additional DNA testing on another of the 3 hairs from the driver’s side headrest. The FBI report states: “The root portion cut from one of the Q1 hairs was subjected to DNA analyses...”. The conclusions state that Patricia Rorrer “is a potential contributor to the DNA recovered from the root portion of one of the Q1 hairs”. The FBI report dated September 16, 1997 does not distinguish between “hair root” and “root portion”. Does “root portion” mean a root was detected on the hair? If so, there is no record of presence of a root on the hair. Furthermore, why was DNA analysis not performed on the “root portion” of the hair in 1995 when DNA analysis was conducted on the swabbing of the “apparent dried blood”?
17. It would be unexpected to find a root is discovered in 1997 attached to the hairs in question, after two years and two different forensic analysts having examined the hairs microscopically and not mentioning any roots. Furthermore, the FBI report previously reported that these hairs had “no roots attached”. Therefore, it is critical to determine whether the hair tested in 1997 by the FBI contained a root and what is meant by “root portion”.
18. Similarly, in 2008 Orchid Cellmark received the mounted hairs for DNA testing and identified a root on one of the 3 mounted hairs. It is important to note that until this point, no root had been identified by Thomas Jensen or Harold Deadman on these hairs.
19. In order to correctly determine which hairs were examined by the Bethlehem lab and tested by the FBI lab, the following materials are required:

**A. Chain of Custody Records:**

1. All Chain of custody records from PA State Police describing possession and storage of the 6 hairs collected by PA State Police starting from collection in 1994 until the end of trial in 1998

2. All Chain of custody records from PA State Police describing possession and storage of known hairs collected from Patricia Rorrer
3. All Chain of custody records from FBI lab describing possession and storage of the 6 hairs collected by PA State Police starting from testing in 1995 until the end of testing in 1997
4. All Chain of custody records from FBI lab describing possession and storage of known hairs collected from Patricia Rorrer

**B. From PA State Police:**

1. Any and all pictures of 6 unknown hairs collected by PA State Police in 1994
2. Any and all pictures of envelopes containing 6 unknown hairs collected by PA State Police in 1994 and how they were originally labeled and stored
3. Any and all notes taken to describe the 6 unknown hairs collected by PA State Police in 1994
4. Any and all case files or police reports records that describe the sample numbers and original labels to identify these 6 unknown hairs
5. Any and all pictures of hairs collected from Patricia Rorrer in 1995
6. Any and all pictures of envelopes containing hairs collected from Patricia Rorrer and how they were originally labeled and stored in 1995
7. Any and all notes taken to describe the hairs collected from Patricia Rorrer in 1995
8. Any and all case files or police reports records that describe the sample numbers and original labels to identify hairs collected from Patricia Rorrer in 1995

**C. From Bethlehem Lab/Thomas Jensen:**


1. All complete case files including bench notes and pictures related to any and all DNA collection or testing conducted by Bethlehem lab/Thomas Jensen
2. All records and pictures of 6 unknown hairs and storage envelopes received, sorted and tested by Bethlehem lab/Thomas Jensen including all identifying sample numbers and labels used for the unknown hairs
3. All records and pictures of Rorrer's known hairs and storage envelopes received, sorted and tested by Bethlehem lab/Thomas Jensen including all identifying sample numbers and labels used for these hairs
4. All records of identifying sample numbers and labels for the 6 unknown hairs and the 14 known hairs from Patricia Rorrer

**D. From FBI Lab:**

1. All complete case files including bench notes and pictures related to any and all DNA collection or testing conducted by FBI lab
2. All records and pictures of 6 unknown hairs (mounted and unmounted) and storage envelopes received, sorted and tested by FBI lab including all identifying sample numbers and labels used for the unknown hairs

3. All records and pictures of Rorrer's known hairs and storage envelopes received, sorted and tested by FBI lab including all identifying sample numbers and labels used for these hairs
  4. All records of identifying sample numbers and labels for the 6 unknown hairs and the known hairs from Patricia Rorrer
20. In addition to the records requested above, current pictures and records of all outside containers and remaining hair evidence from the driver's side seat rest (hairs Q1-Q6) as well as the known hairs from Patricia Rorrer are needed to review which hairs were in fact tested and what remains for any further testing if needed.
21. I reserve the right to change my opinion if new information becomes available.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Signature:   
Huma Nasir, MS, D-ABC  
Forensic DNA Expert  
HN Forensic Consulting LLC

Executed on: March 14, 2021