
**DISTRICT COURT OF MONTGOMERY COUNTY, TEXAS
9TH JUDICIAL DISTRICT**

EX PARTE LARRY RAY SWEARINGEN,

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No.

AFFIDAVIT OF HUMA NASIR, M.S.

I, Huma Nasir, declare, under penalty of perjury, that the following is true and correct:

1. My name is Huma Nasir. I am over the age of 18 and otherwise fully competent to give this statement.

2. I am the mitochondrial DNA and Y-STR Technical Leader and a Forensics Supervisor at Cellmark Forensics in Dallas, Texas.

3. Cellmark is an accredited laboratory that specializes in forensic DNA testing. Cellmark conducts DNA testing for law enforcement and other government agencies as well as private clients.

4. Orchid Cellmark's accreditations include the American Society of Crime Laboratory 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. Our analysts routinely undergo proficiency testing in accordance with these accreditations.

5. For over 20 years, Cellmark has successfully obtained DNA profiles from forensic evidence in thousands of cases, including pre-trial and post-conviction homicide cases, decades-old "cold" cases, and cases where other laboratories consumed substantial portions of the evidence through attempted serology and/or DNA analysis. I have personally performed DNA testing and/or analysis for thousands of cases, both pre-trial and post-conviction.

6. I have been a Forensic DNA Analyst for over four years at Cellmark. I was previously employed as a Forensic DNA Analyst at ReliaGene Technologies from February 2001 until December 2007. I have provided expert testimony as a Forensic DNA Analyst in over 75 cases and have been admitted as an expert witness in jurisdictions across the country. I have over 11 years' experience in DNA analysis.

7. I earned a Bachelors of Science in Biological Sciences from the University of New Orleans in 2000 and a Masters of Science with a concentration in Forensic DNA and Serology from the University of Florida. I co-authored the article "Utility of the Y-STR Typing System Y-PLEX 6 and Y-PLEX 5 in Forensic Casework and 11 Y-STR Haplotype Database for Three Major Population Groups in the United States." A copy of my curriculum vitae detailing my experience and credentials is attached hereto as Exhibit A.

8. I submit this Affidavit to advise the Court of the capabilities of Cellmark, about which I have personal knowledge, to obtain new and relevant information from evidence gathered in the investigation of the murder of Melisa Trotter and the prosecution and conviction of Larry Swearingen. In preparing this affidavit, I discussed the facts of the case with Innocence Project Staff Attorney Bryce Benjet and reviewed various law enforcement records including reports of DNA testing by the Texas Department of Public Safety ("DPS") conducted pre-trial in this case. All opinions offered in this Affidavit are to a reasonable degree of scientific certainty.

9. Modern DNA technology is considerably more sensitive and sophisticated than the testing available in 1999 and 2000. The STR kits available for forensic testing today, namely Identifiler Plus, MiniFiler and Yfiler, are significantly more sensitive than the kit used in this case in 2000. STR DNA technology identifies individuals through the differences in 13-15 separate regions of a person's DNA. Today's STR techniques can develop full or partial genetic profiles where traditional DNA methods could not. Current STR technology is sensitive enough to identify an individual's unique DNA profile from a microscopic amount of biological material previously undetected using traditional DNA methods. Today's STR testing can also potentially develop DNA profiles from poorly preserved or decades-old degraded samples that were unsuitable for testing using the techniques available over a decade ago.

10. Y-STR testing, which became available for forensic use in 2000, is more likely to obtain probative results where the evidentiary items contain a mixture of male and female DNA. Y-STR technology is similar to STR DNA testing with one major difference: the STR regions targeted for identification are all located on the Y-chromosome, which is exclusive to males. By targeting only male DNA and "ignoring" the female DNA, Y-STR testing can help identify the male DNA present in a sample. Y-STR technology is especially valuable where the evidence contains a large amount of female DNA and a very small amount of male DNA.

11. "Mini-STR" testing, which is designed to focus on portions of the DNA that are often the last to deteriorate over time, can also reveal a DNA profile that may not be obtainable through traditional STR testing. Mini-STR technology is particularly suitable for small or degraded samples. This technology became available for forensic use in 2007.

12. It is my understanding that the majority of the evidence was collected by Harris County Medical Examiner's Office. From our experience in working with evidence sent by the

Harris County Medical Examiner's Office, it appears that they follow standard procedures in evidence collection, evidence handling and shipping. Therefore, it is unlikely that the evidence would be tampered with or contaminated and thus this evidence would be suitable for DNA testing. The items of physical evidence collected in Mr. Swearingen's case, include (a) the victim's left and right hand fingernail scrapings; (b) one leg of a pair of pantyhose found around the victim's neck; (c) another leg of a pair of pantyhose found in Mr. Swearingen's home; (d) the victim's clothing; and (e) cigarette butts found at the crime scene.

13. For the following reasons and based on my forensic training and my experience conducting DNA testing in post-conviction homicide cases – including decades-old cases – it is my opinion that modern STR, Y-STR and/or mini-STR DNA testing on the foregoing evidence can potentially provide probative, if not dispositive, evidence as to Mr. Swearingen's guilt or innocence.

Fingernail Scrapings

14. The autopsy report in this case indicates that fingernail scrapings were taken from both hands of the victim. Generally, a forensic scientist obtains fingernail scrapings by taking a scalpel or other sharp object and scraping the fingernails. The debris from the scraping may consist of the fingernail itself as well as any dirt, debris, or other material that may be deposited under the fingernail. Thus, fingernail scrapings contain biological material because they are themselves biological material.

15. Foreign DNA under a person's nails can be deposited through consensual sexual activity or violent, close range struggles. In homicide cases, it is not uncommon to find the assailant's DNA underneath the victim's fingernails.

16. Based on my review of the records and conversation with Mr. Benjet, I understand that pre-trial DNA analysis by DPS suggested the presence of red flakes in the fingernail scrapings from the victim's left hand. The testimony records indicate that testing of these red flakes yielded a male profile that excluded Mr. Swearingen. If that DNA testing yielded a partial profile, the sample should be re-tested using today's advanced STR technology, which can potentially develop a more complete profile of the male contributor. Even if prior DNA testing yielded a complete profile, the sample should be re-tested because modern DNA testing may detect other foreign DNA profiles in that sample that could have been missed using the older, less sensitive testing used over a decade ago.

17. Because this was a strangulation case, and male DNA has already been detected in some of the scrapings from the victim's left hand, DNA testing should also be conducted on (a) any other material obtained from the fingernail scrapings of the victim's left hand; and (b) the fingernail scrapings from the victim's right hand. Such testing can detect whether a consistent male DNA profile (that is, the same male contributor) is found in multiple scrapings.

Touch DNA

18. An individual's biological material, namely skin cells, is transferred onto objects or surfaces that are touched or handled. This is called "contact" or "touch" DNA. Because an assailant's genetic material is often shed/transferred onto objects or clothing used to strangle or bind victims, ligatures are a prime source of DNA collection.¹ Advances in DNA technology since the time of Mr. Swearingen's trial enable us to obtain touch DNA profiles from microscopic amounts of an individual's biological material left on ligatures and clothing.

¹ An object that is suspected to contain skin cells can be tested using the same DNA technology that is used to test for other biological fluids such as blood, saliva or semen.

19. Touch DNA is not visible to the naked eye. Thus, in seeking skin cells on evidence, different methods are used on different textures of evidence to achieve the best possible result in obtaining a DNA profile. Cellmark uses a scraping and swabbing method in order to lift and collect skin cells from an object. A large surface area is covered with the scraping and swabbing method to maximize the number of cells collected from that object. By using this method of collection we have been successfully able to obtain DNA profiles from fabric materials.

Pantyhose Ligation

20. Law enforcement reports and the autopsy in this case indicate that the victim was strangled with a piece of pantyhose that was tied in a knot. A ligature used to strangle a person is likely to contain biological material from both the victim and the assailant. In this case, the pantyhose was tied in a knot, was used to strangle the victim, and left a "dark purple, 2-1/2 inch raised mark" on the victim's neck. Thus the pantyhose was probably handled by the assailant with some force and likely contains his biological material that is suitable for DNA testing.

21. During my review of this case I was also told that a portion of pantyhose was located in Mr. Swearingen's house. Biological material from any wearer of these pantyhose and anyone who tore the pantyhose is likely to be detected on this item using modern DNA testing.

22. DNA testing has the potential to identify the unique profile of the individual who strangled the victim. Indeed Cellmark has obtained DNA profiles of perpetrators in several cases by testing of ligatures or other fabrics used as ligatures. Likewise, DNA testing of the pantyhose found in Mr. Swearingen's home could provide important information as to whether there is a link between the two pieces of pantyhose.

23. Cellmark is pre-approved to conduct DNA testing that can be uploaded into the Texas and national CODIS databases. Therefore, any STR DNA profile found on the evidence can be reviewed and run through CODIS to determine whether the profile links to a known offender.

Victim's Clothing

24. Touch DNA analysis should also be performed on the victim's clothing. In this case, the back pocket of the victim's jeans was torn and her upper garments (her bra, shirt and sweater) were found bunched over her breasts. Where there has been such obvious and forceful contact with the victim's clothing, the biological material of the victim and the perpetrator is likely to be deposited on the clothing. As with the ligature, an STR profile from the clothing can be uploaded into the Texas and national CODIS databases. Therefore, it may be possible that a known offender will be linked to the crime. Even if such a link is not made, the same DNA profile on the ligature, fingernail scrapings, and clothing will provide powerful scientific evidence that the DNA came from the assailant and not through an isolated instance of contamination.

Cigarette Butts

25. Law enforcement documents indicate that cigarette butts were found near the victim's body. Mr. Benjet told me this evidence was never subjected to DNA testing. Cigarette butts are common items of crime scene evidence submitted for DNA testing. Because cigarettes are both manually handled and placed in a person's mouth, skin cells and epithelial cells from saliva were likely deposited on the cigarettes, rendering them suitable for DNA analysis. Any resulting STR profile from testing of the cigarette butts can be compared to the CODIS database and match the profile of a known offender who could be investigated as a perpetrator. Also, the

same DNA profile on the ligature, fingernail scrapings, clothing and cigarette butts would strongly support the inference that the person whose profile is present may have participated in the murder.

26. Finally, Cellmark has an existing agreement to conduct DNA testing for Texas DPS.

27. I attest, under penalty of perjury, that the foregoing facts are true and accurate to the best of my knowledge, information and belief.

28. I reserve the right to change my opinions if new information becomes available.

Huma Nasir
HUMA NASIR, M.S.

Executed: Dallas, Texas
January 16, 2013

Sworn before me this

16th day of January, 2013

Melanie Gilbert
Notary Public

