

A Serial Killer's Achilles' Heel: Modern Forensic Techniques

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Burner phones are widely considered untraceable and disposable devices that have become synonymous with secrecy, often featured in movies and TV shows depicting illicit activities. But how exactly do burner phones work? Can carriers and law enforcement agencies manage to track their locations? And how did an alleged serial killer's burner phones contribute to his recent apprehension?

Burner Phone Basics

A burner phone, also known as a disposable phone, is a prepaid mobile device designed to be used briefly before being discarded or replaced. These devices are usually acquired without any identification requirements, offering a level of anonymity that regular phones lack. Burner phones are commonly associated with criminal activities, espionage, and privacy-conscious individuals seeking to avoid unwanted tracking. Basically, everything that a serial killer would want to conceal their activity.

The functionality of a burner phone is like that of any other mobile device. It operates on the same cellular network infrastructure, allowing users to make calls and send messages. The primary difference lies in the way they are purchased or registered. Typically, users can buy a burner phone without providing personal information, such as their name, address, or any other form of identification documentation. This allows the preservation of anonymity, making it difficult for authorities to trace the device back to its owner through traditional means.

While burner phones may seem untraceable at first glance, when a burner phone is activated and used, it establishes a connection with nearby cellular towers to ensure network coverage. The carrier records are based on the phone's unique identifier, the International Mobile Equipment Identity (IMEI) number, which is distinct for each device. IMEI numbers are essential for identifying stolen or lost phones, as well as tracking devices in case of emergencies.

Location tracking of a burner phone relies on the device's communication with cell towers. When the user makes or receives a call or sends a message, the device communicates with the nearest tower with the strongest signal. By triangulating signals with multiple towers, the phone's approximate location can be determined with varying degrees of accuracy. Cell tower site records are only retained for a limited amount of time, however.

Now that we've covered the basics of burner phones, let's take a look at a recently developing news story involving burner phones and the mobile forensics investigation that helped apprehend a suspected serial killer.

In the News

Rex Heuermann, also known as the Long Island Serial Killer or the Gilgo Beach Killer, was recently charged with three counts of first-degree murder and three counts of second-degree murder. A **bail application** filed on July 14, 2023 details an investigation into the defendant's burner phones among the justifications for remanding the defendant without bail.

In January 2022, a task force was formed to review all the evidence previously collected by this decades-long investigation into the unknown serial killer responsible for the bodies found along Gilgo Beach. Through this process, investigators found probable cause to subpoena billing records for the suspect's cell phone billing records.

Four women whose bodies were found within close proximity of each other had all contacted someone with a burner phone shortly before their respective disappearances. Authorities have determined that two of the four victims' cell phones were used after their deaths. Due to the amount of time that has passed since these women were killed, the cell tower site records are no longer available. Investigators instead turned to the next best source of data to further their analysis.

Billing records, while less precise than cell phone tower triangulation, show the general locations of a device when calls and text messages are received. Investigators analyzed Heuermann's cell phone billing records against those of the victims' cell phones to compare their locations. The victims' cell phones matched the approximate location of Heuermann's cell phone and a burner phone around the respective times each woman went missing. The two primary locations noted in the court records are Midtown Manhattan, where Rex Heuermann worked, and Massapequa Park, where Rex Heuermann lived.

Investigators also reviewed each time one of the victims' cell phones was used by their killer to taunt their families following their disappearances. For every instance that one of the women's cell phones was used following their death, investigators could not find one where Heuermann was at a different location.

The bail application offers the example: “On July 10, 2009, the last day Melissa Barthelemy was seen alive, both the burner phone and Defendant Heuermann’s phone were in the area of Massapequa and traveled together toward New York City. Thereafter, both Ms. Barthelemy’s phone and Heuermann’s phone traveled eastbound toward Massapequa.” Additionally, “following Ms. Barthelemy’s disappearance... a male caller used the Barthelemy Phone to contact Ms. Barthelemy’s family. The Barthelemy Phone was located in New York City at this time, specifically attached to a cellular tower located at 4 Penn Plaza, which is approximately 2,372 feet or .45 miles from Heuermann’s then-office space.”

A couple weeks later, Heuermann’s phone and the burner phone both utilized another cell tower on the same day that is located .16 miles from where Heuermann works. The bail application details several similar instances and even includes map illustrations to visualize the burner phones’ locations in relation to Heuermann’s home and office at the time of the activity.

Additional Mobile Forensic Techniques

Investigators found payments to the dating app Tinder listed on Heuermann’s American Express account records. Records subpoenaed from Tinder “revealed that the Tinder profile was set up in the name ‘Andy’ (Heuermann’s middle name is Andrew), with links to a burner phone.” The email account associated with the suspect’s Tinder profile was also linked to a separate burner phone. Further investigation revealed that both burner phones were frequently used in Midtown Manhattan and Massapequa Park. “Specifically, the records revealed that both these burner cellphones consistently had activity on the cellular towers that provided coverage to defendant Heuerman’s residence in Massapequa Park and his business in New York City.”

An additional Google account discovered in relation to the burner phones revealed an extensive browsing history consisting of sex workers, child pornography, serial killers, the four woman that were found on Gilgo Beach, images of the victims and their family members, and things regarding the investigation. Investigators received IP address information from Google that revealed that the IP address at Heuermann’s home is the same IP address used to accept Google’s Terms of Service. Surveillance footage was also discovered showing Heuermann adding minutes to one of the burner phones.

While burner phones may offer anonymity, they are not entirely untraceable. As technology advances, so do the methods for locating these devices. The investigation into Rex Heuermann utilized analysis of cellular billing records and data subpoenaed from online accounts and applications before DNA evidence was collected and tested. The court filing concludes by citing Heuermann’s use of burner cell phones, recent search history, and attempts of online countersurveillance among the justifications for remand without bail. Decades after the investigation in the Long Island Serial Killer began, modern Mobile Forensic techniques are helping to answer questions that traditional methods could not.

All information referenced throughout this article pertaining to Rex Heuermann was sourced from the [bail application](#) prepared by Suffolk County, NY District Attorney Raymond A. Tierney on July 14, 2023.

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