

From *The Ripple Effect* by Alex Prud'homme
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PROLOGUE Under Pressure

Thirty-five feet down, on the bottom of a concrete tank filled with a million gallons of bitterly cold water, lay a body. The tank's fifty-pound lid was slightly askew; its usually secure bolts were loose or missing. Shards of glass—the remains of a beaker for taking water samples—were scattered across the concrete floor. This was in early February 2005, in a state-of-the-art water purification plant in suburban New Jersey.

The victim was Geetha Angara, a well-liked forty-three-year-old hydrochemist. She was the mother of three, the wife of a banker, had a PhD in organic chemistry from New York University, and had worked at the Passaic Valley Water Commission plant for twelve years. In 2004, the plant underwent a \$70 million upgrade, during which a chlorine treatment system was replaced by an ozone-based system. At the same time, Angara was promoted to senior chemist. Her job was to maintain water quality to standards set by the Environmental Protection Agency (EPA) and to oversee the new ozone generators, which would suffer from cracks and other problems. A colleague recalled that during the plant's reeducation, Angara was “in such a fabulous mood, [but] other people around her weren't.”

An autopsy showed that Angara had been forcibly subdued but that she was still alive when she fell, or was pushed, into the tank. “There was no way out,” said Passaic County prosecutor James Avigliano. “The water level was five feet below the opening. It was pitch-dark, ice-cold, thirty-six-degree water. There were no ladders. It was just a horrible way to die. There is no doubt that this is homicide.”

The Passaic treatment plant sits on the outskirts of Totowa, a bustling suburb of ten thousand, just west of Manhattan. The

plant purifies 83 million gallons of drinking water a day. Although New Jersey has relatively large water reserves, the state's rapid growth has put tremendous pressure

on its water supplies. Towns are competing for the same resources, water rates are rising, decades of pollution have poisoned rivers and aquifers, and infrastructure is aging. As in many states that suffer from similar problems, private water companies sensed an opportunity in New Jersey and began to move in. By the mid-1980s, the Hackensack Water Company controlled hundreds of acres in the watershed of northern New Jersey, supplied water to many towns, and had acquired numerous smaller water companies. When in the early 1990s the company announced it would turn some of its wetlands and forests into housing developments, arguments broke out in town meetings. Local environmental groups—worried that the developments would contaminate the watershed—filed lawsuits to block them. A 1993 settlement preserved 650 of the disputed acres. But in 2000, the company—renamed United Water Resources, and operating in fourteen states—pushed to develop a twenty-acre parcel adjacent to the Oradell Reservoir, near the town of Emerson, and just a few miles from the Passaic Valley water plant. This time, the Environmental Defense Fund, a national environmental group, spearheaded the drive to protect drinking supplies. Both sides were threatening legal action when the giant French water company Suez took a controlling interest in United Water—for \$1.36 billion, in mid-2000—and brokered a truce. In December 2001, the borough of Emerson purchased the disputed lot for \$7.8 million and turned it into a nature preserve—though the battle still rankles New Jerseyans.

Water is now a big, if unglamorous, business. Disputes over the control of supplies, and the privatization of utilities, have become increasingly common across the country—from

Atlanta, Georgia, to Stockton, California—and around the world, from China to Bolivia. In some cases, privatizing water leads to better service; in many cases, it results in higher fees; occasionally, it has led to social upheaval and violence, as people protest the commoditization of an essential resource.

Geetha Angara was proud of her work at the Passaic Valley treatment plant, and she always conducted her water tests conscientiously. On the day she went missing, she was alone by the water tank for only a short time. That afternoon, colleagues noticed an odd sight: an uneaten sandwich on Angara's impeccable desk; they began to search for her but did not call the police for ten hours. The following afternoon, police divers were called in and eventually discovered her radio and clipboard at the bottom of a tank. But Angara's body had migrated from the main tank into a second tank, the "clear well," and wasn't discovered until hours later.

Plant administrators worried that the water might have become contaminated and decided to drain the entire 1-million-gallon tank. By the time Angara's body was recovered, chlorine used as a cleansing agent had destroyed any potential DNA evidence.

As news of Angara's death spread in surrounding communities, rumors flew. Officials canceled school, and some local businesses temporarily closed. (A dead body will generally sink as soon as the air in its lungs is replaced by water; once submerged, liquids and feces escape the cadaver, which begins to decompose, rendering the surrounding water unhealthy to drink.) As a precaution against contamination, the Passaic Valley Water Commission issued a "boil order"—a suggestion that the public boil drinking water, to purify it—to seventeen towns. The citizens of Passaic County were forced to confront an uncomfortable fact: their heretofore safe, dependable, boring water supply was not as secure as they had always assumed it was.

Investigators were unable to discover a clear motive for Angara's killing, but they felt sure of one thing: the plant was protected from outside intruders, so she was likely murdered by one of her eighty-five coworkers. All fifty employees present on the day of her death were interviewed and provided DNA samples. Eight of them were deemed of "special interest"; three of them were especially suspect because their stories didn't add up. But without a clear motive or proof of a crime, the investigation stalled in 2006. Detectives were no longer working full-time on the case, though it remained technically open (and therefore I was not allowed to view the voluminous investigative files). The following year, the Angara family filed a wrongful-death suit against the PVWC and a number of individually named supervisors and lab technicians, claiming the water plant—which had a history of accidents involving extremely high levels of chlorine in the water, open and unguarded water tanks, dirty work spaces, a lack of internal security measures, and a record of fifty-five health and safety violations—was a dangerous workplace that the PVWC allegedly knew about but failed to correct. In 2009, a state judge instructed attorneys to mediate the lawsuit. The commission's lawyer declined to comment, other than to say, "The PVWC continues to deny these unproven allegations."

With Angara's death still a mystery, questions remain. Why would someone murder a respected hydrochemist? Did it have anything to do with the quality of water at the plant? Had the water at the PVWC really turned a pinkish color the week before the murder, as Angara had confided to her husband? If so, what did that mean? Did Angara blow a whistle on a colleague? Did the expensive new ozone disinfectant system, which had caused Angara headaches for weeks, have some kind of embarrassing problem? Had she inadvertently stumbled over something illicit, such as a drug deal, or a tryst, as some have alleged? Were any of the more

outra- geous conspiracy theories—such as the claim, whispered to me in a windy parking lot, that the New Jersey mob had been angered by the PVWC’s switch from chlorine to ozone treatment, a move that supposedly curtailed work done by contractors under mob control, and had put out a hit on Angara—true? (No evidence has been presented to back this theory.) One indication that her death may have had something to do with water quality, and not professional jealousy or personal antipathy, was that the EPA sent agents to review PVWC maintenance records. State prosecutors played down the importance of the visit, saying the federal agents “were just dotting their i’s and crossing their t’s. They found nothing.”

To the public, the most pressing question surrounding Angara’s death was, how could a body enter the drinking supply in one of the nation’s most densely populated regions and remain undetected for a day and a half without sounding an alarm? The answer was that in the PVWC tank, the sensor designed to warn of any change in water displacement wasn’t working. So when Geetha Angara fell, or was pushed, into the water tank, no alarm sounded to warn that something weighing 175 pounds had entered the water. It could just as easily have been 175 pounds of cyanide, or a biological weapon, as a body.

This revelation led to further questions. If a body could contaminate 1 million gallons of water with no warning, then what other contaminants might lie unidentified in the drinking supply? In light of the September 11, 2001, terrorist attacks in nearby Manhattan, were the PVWC’s treatment chemicals—such as chlorine (a potentially deadly gas that was used as a chemical weapon during the First World War)—used properly and secure?