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Do Aging Pipes Pose an Unseen Threat?

By Cathy Tyson



A 66-year-old water main on Reliez Station Road ruptured with a 15-foot-long break on Nov. 27. Photo courtesy East Bay Municipal Utility District

Report that was filed with the Water Board, Fish and Wildlife, and the city of Lafayette, "The discharge lasted for six hours for several reasons including difficulty finding isolation valves in the dark under water and mud, the need for specialized equipment to close the larger valves, and one valve being broken open requiring alternative valves to be located and closed."

EBMUD has more than 900 main breaks per year, but EBMUD Public Information Representative Nelsy Rodriguez said the Reliez event was unique. "That was a bad break," she said of the 66-year-old pipe on Reliez, noting that it was "huge - 16 inches in diameter" and the break itself was 15 feet long. Rodriguez said it took crews "a while" to find out the exact location of the break, especially since it was dark and freezing cold that night.

Due to the size of the break, the crews had to shut off seven valves to turn the water off completely. "A job like that normally would have required us to shut off three valves, so that should help to explain how big this main break was," said Rodriguez in an email. Once the water was turned off around 11 p.m., crews dug through the night but did not finish the job until 11 a.m. the next day.

The pipes in Lamorinda are getting old. According to Rodriguez, the average pipe in Lafayette is 65 years old, average pipes in Orinda are 66 years old, and Moraga's pipes are, on average, 50 years old. With about 4,200 miles of aging water pipeline, EBMUD is currently replacing 10 miles of pipe each year, but is looking to quadruple that replacement rate to 40 miles per year in the future, according to EBMUD Senior Public Information Representative Abby Figueroa. With a price tag of \$2.4 million to replace one mile of water pipe, the utility spends \$24 million annually replacing pipes.

The utility plans to replace an additional two to three miles of pipe in 2016, but at that rate, replacing 13 miles of pipe per year, it would take 323 years to replace everything. Even at the accelerated rate of 40 miles per year, it would take just over 100 years to replace all the pipes.

A pipe's lifespan has many nuances depending on the soil conditions, if it is in a slide zone, if there is earthquake movement and more. The oldest pipes in the area are cast iron, but post-World War II, cement pipe was used.

While residents in Lamorinda and beyond have been hammered with conservation messages during this historic drought, an estimated 2.6 million gallons of water went down the drain Nov. 27 when an East Bay Municipal Utility District water main broke on Reliez Station Road, flooding five backyards and affecting 35 EBMUD customers.

The break was reported at 4:30 p.m. and took just over six hours until the water was finally shut off at 10:45 p.m. The water lost was the equivalent of the amount of water 19 homes would use in a year, according to figures from the California Single Family Water Use Efficiency Study, which estimates the average household uses 360 gallons of water per day.

When a major break releases water that impacts nearby waterways and creeks, the utility is required to send a report to the EPA's National Pollutant Discharge Elimination System which has regulatory standards for wastewater discharge.

According to the EBMUD Potable Water Discharge

The good news for residents around the area of the break is that the pipe was repaired, they have clean running water, and the detour the repair caused is no longer causing congestion. The bad news for Lamorinda residents is that 11 percent of water EBMUD supplies disappears before it reaches your water meter, according to the 2010 Urban Water Management Plan, prepared by EBMUD - an unfortunate statistic to learn during current Stage 4 critical drought. In the report's last chapter, the utility describes the difference between the volume of water produced at the treatment plant, and the sum of all billed and unbilled customers, called Distribution Water Losses.

All water systems have some losses, from a low of 1.4 percent for some utilities to a high of 25.7 percent for others, according to the Department of Water Resources. The "loss" amount comes from a number of sources: theft, inaccurate metering, data errors, but mostly main and service line breaks, along with background leakages.

With a network of vintage pipes covering a 331-square-mile area, responding quickly and efficiently to inevitable pipe breaks will be imperative, especially as EBMUD continues to require customers to conserve.

Knowing the infrastructure is at or nearing the end of its useful life, Figueroa said there are a number of reasons the utility does not take a more holistic approach to replacement: EBMUD has already identified areas most at risk, and also figures in critical use, for example, pipes connecting to a hospital, and there are budget limitations.

"Plumbing is expensive," she said, adding that installing pipe is a disruptive process, tearing up the street, causing congestion. EBMUD seeks to minimize inconvenience. "If it still works, it still works."



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