

Rural Community Assistance Corporation (RCAC)



MIWOA Workshop

February 2, 2022

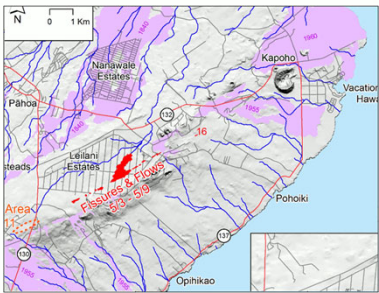
Barry Pollock, Rural Development Specialist-Engineer

Susan Jamerson, Rural Development Specialist

1

Puna (Kilauea)Eruption – May – Aug 2018

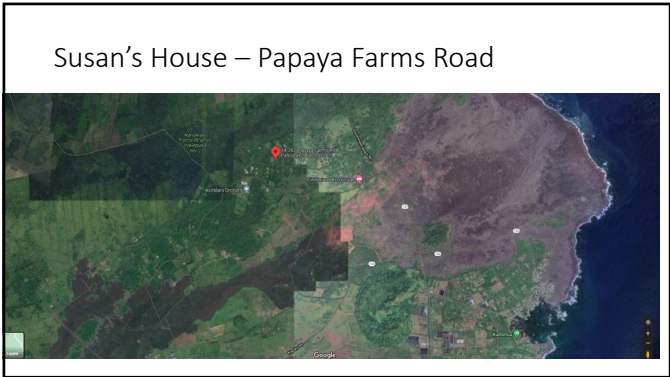
A short Hawaiian talk story by Barry Pollock and Susan Jamerson, RCAC



2



3



4

2018 lower Puna eruption – Wikipedia page

https://en.wikipedia.org/wiki/2018_lower_Puna_erauption

- The **2018 lower Puna eruption** was a volcanic event on the island of **Hawai'i**, ("Big Island") on **Kilauea** volcano's East **Rift Zone** that began **on May 3, 2018**. It is related to [the larger eruption](#) of Kilauea that began on January 3, 1983, though some [volcanologists](#) and USGS scientists have discussed whether to classify it as a new eruption.^[a] Outbreaks of lava fountains up to 300 feet (90 m) high, lava flows, and [volcanic gas](#) in the [Leilani Estates](#) subdivision were preceded by earthquakes and [ground deformation](#) that created cracks in the roads.
- On May 4, a [6.9 magnitude earthquake](#) hit **Puna**. By May 27, 2018, 24 fissures had erupted lava in and near the Leilani Estates and Lanipuna Gardens subdivisions.^{[a][b]} The eruption forced the evacuation of approximately two thousand residents. The [Puna Geothermal Venture](#), which provided one-quarter of the island's electricity, was forced to shut down and was later damaged by lava. The fissures had sent lava rivers that buried part of [Hawaii Route 137](#) on May 19, and began flowing into the ocean.^[a]

5

2018 lower Puna eruption – Wikipedia page

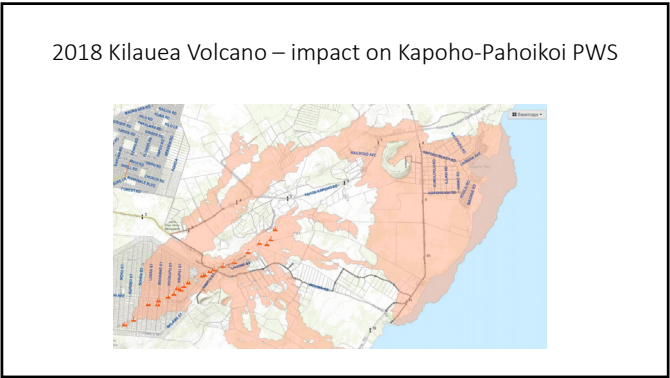
https://en.wikipedia.org/wiki/2018_lower_Puna_a_eruption

- On May 29, lava from a new northeastern flow overran [Hawaii Route 137](#), cutting the access between [Kapoho](#) and [Pāhoehoe](#).^[a] The massive lava flow reached the Pacific Ocean at [Kapoho Bay](#) on June 4.^{[a][b]} Lava entered the Kapoho Crater and evaporated [Green Lake](#), which had been the largest natural freshwater lake in Hawai'i. On the night of June 4–5, the northeastern flow of lava speedily moved forward and destroyed the subdivision of [Vacationland Hawaii](#).^[a] By June 5, [Kapoho Bay](#) had been filled in with lava now forming a point where the bay had been.^{[a][b]} The volcanic activity was the most destructive in the United States since the [1980 eruption](#) of [Mount St. Helens](#).^{[a][c]}
- **By August 7**, 13.7 square miles (35 km²) of land had been covered by lava flows. About 875 acres (3.54 km²) of new land has been created in the ocean.^{[a][d][e]} The official number of houses destroyed by the eruption reached 700 on July 9.^{[a][f]} It was estimated that recovery efforts would cost more than \$800 million (2018 USD).^{[a][g]} By early August the eruption had almost completely subsided, and on December 5, it was declared to have ended after three months of inactivity.^{[a][h]}

6



7



8


County run Public Water system impacted

When the Kilauea volcano on the Big Island of Hawai'i first started erupting in 2018, water crews scrambled to keep in front of the damage.

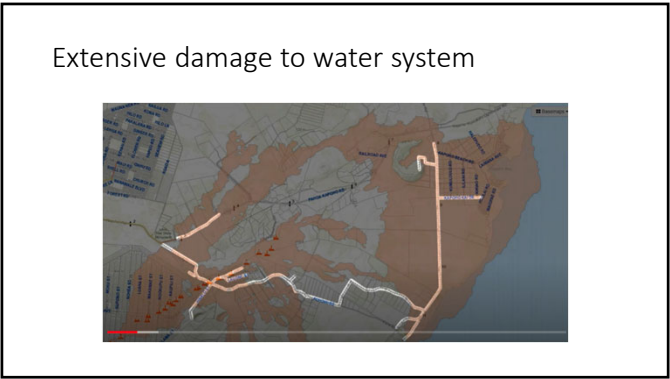
Lava first flowed underground, creating fissures in the land and gasket-melting subsurface temperatures, and broke the ductile iron pipe buried below Pohoiki Road.

Crews rigged up a bypass (pictured left), looping a temporary pipe from one hydrant to another to keep water flowing.

"That success story didn't last too long though," said Keith Okamoto, manager-chief engineer of the County of Hawai'i's Department of Water Supply.



9



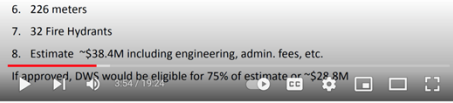
10

Damage to K-P water system

Water System Components

1. Lanipuna Gardens Reservoir (100,000 gallons concrete)
2. Kapoho Reservoir (100,000 gallons concrete)
3. Kapoho Well, Chorination and Control Building
4. 12", 10", 8", 6", and 4" waterline - ~14.5 miles of which ~9.5 miles inundated by lava
5. 249 service laterals for approximately 439 services
6. 226 meters
7. 32 Fire Hydrants
8. Estimate ~\$38.4M including engineering, admin. fees, etc.

If approved, DWS would be eligible for 75% of estimate ~\$28.8M



11

Next Steps for K-P PWS – County

- Now the utility is sorting through what makes sense to repair and rebuild and what should be left to Mother Nature. The utility will receive \$30 million in Federal Emergency Management Agency (FEMA) funds to support water infrastructure improvements and is working with the community to prioritize projects, which will go before FEMA for approval this spring.
- It's a big, fuzzy crystal ball, as Okamoto said, because the department does not know how many residents will return to the area most impacted by the eruption. Many may participate in the county's voluntary housing buyout program, an effort to relocate people away from high-risk lava zones. If that happens, the water department will have to balance the expense and potential water quality issues with the need to rebuild water infrastructure in an area with a smaller population than before.

"What makes the most sense when reinvesting in infrastructure in an area that people may not return to?" he said.

12

Hawaii & Pacific Islands Technical Assistance Providers:

Barry Pollock, Rural Development Specialist – Engineer (Oahu)
BPollock@rcac.org 510-759-6984

Susan Jamerson, Rural Development Specialist (Big Island, Hawaii)
SJamerson@rcac.org 808-300-8289

Helene Takemoto, Rural Development Specialist III (Oahu)
HTakemoto@rcac.org 808-723-4277

Rex Kamakana, Rural Development Specialist (Molokai)
RKamakana@rcac.org 808-658-9795

Angela Hengel, Manager, Pacific Programs (San Diego, CA)
Ahengel@rcac.org, 760-809-