

Not My Fault: Finding fault(s) at the PG&E power plant site

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A few of you may remember Rashomon, the 1950 movie directed by Akira Kurosawa. It is the story of a murder in medieval Japan told by each of the participants, including the ghost of the victim. Everyone's account is different; the only point of agreement is the murder. Poking into the history of the PG&E nuclear facility at King Salmon is a Rashomon moment. We agree that the plant ceased operations in 1976 and that PG&E made the closure permanent in 1984, but the events that led to its demise are unclear and viewed differently depending on who you talk to.

I was a latecomer to the story. I came to Humboldt in winter 1978 but was so busy my first term teaching that I paid little attention to anything else. Uncovering the nuclear unit's first two decades in hindsight has been a slog and I wish I had been more perceptive back then. Many of the participants are deceased, others moved away, and time has faded memories of those still here. In my narrative below I admit to imagining how some of the events played out.

Geology was booming in Humboldt County in the mid 1970s. The HSU Geology Department grew by leaps and bounds. The Department began the decade with three faculty and a major that was only a few years old. When I arrived eight years later, there were seven permanent faculty, six temps and over 250 majors. There were also geologists working for the forest service and the new Redwood National Park.

That boom is the reason I am here. My future husband was hired by Redwood National and State Parks in 1976. I was still finishing my degree in Berkeley but would visit whenever I could. There were many geofolk gatherings and the parties were epic. It was a vibrant earth science community with much interaction among HSU faculty, students, federal/state agencies, and consultants.

One of the forest service geologists was Tom Collins. The forest service hires geologists to look at slope stability and road impacts and I'm sure Tom covered a wide swath of

the region as part of his work. At some point in his travels, he found a small quarry in Fields Landing just east of 101 and noticed a suspicious series of cracks. He knew Adam Honea, a structural geologist at HSU, and Adam took students to look at the site as well.

It's hard not to find cracks in rock units, so what were special about these? This was a sand quarry, and the material was not well consolidated. Tom had found a series of conjugate fractures, oriented in a pattern distinctive of recent fault movement. The site was only a mile from the PG&E nuclear unit and was highly suspicious.

Collins was so concerned that he wrote a report on the fault features to the Nuclear Regulatory Commission (NRC) in January 1976. The report was seen by Ralph Nader who, a few months later, included the Humboldt plant in an AEC letter expressing concern about the seismic safety of all California nuclear reactors. When the Humboldt nuclear facility was shut down for refueling and maintenance in July, PG&E reported that it would likely be closed for a year for seismic upgrades as well.

This is the point when the geologic investigations accelerated. Woodward-Clyde consultants were brought in to conduct a detailed study. The following year, with the seismic issue still unresolved, Tom Collins and Adam Honea along with Wesley Chesbro, Fred Cranston, Dmetrios Mitsanas, the Sierra Club, and Friends of the Earth came together to formally petition the NRC to revoke the plant's license over the seismic safety concern.

Intervention is the process the NRC established for citizens and organizations to sue to stop operation of a nuclear facility. It is a laborious and costly process and would-be intervenors must demonstrate competence and an understanding of the process to be accepted as intervenors. The Humboldt group were accepted as intervenors on the basis of seismic safety in May 1978. The NRC requested that PG&E provide a satisfactory response to the faulting concerns before restarting the plant.

One can follow the intervention process through NRC documents. In March 1979, PG&E informed the NRC that they needed more time to complete the fault studies. Seven months later, the intervenors filed another petition claiming PG&E had failed to provide the results of the earthquake investigation; the NRC gave the operators another extension.

Meanwhile, the nuclear landscape had changed. The March 1979 Three Mile Island accident created nationwide alarm about nuclear safety and the NRC imposed new

regulations for continued operation of existing power plants. The 63 MWe Humboldt plant was obsolete in design, plagued by operational problems, and the power production did not justify the expense of bringing it into compliance with the new standards even if the seismic issues could be resolved.

In the Intervenor's October 1979 filing, they accuse PG&E of dragging their feet in the inevitable closure of the plant. The NRC continued to grant the company additional time for research. In 1983, PG&E finally submitted the application to close the plant permanently. In the history of the intervention process, no nuclear power plant has had a license revoked, but I think it likely that the Humboldt intervention process prevented restarting the plant for another few years until the new regulations made it economically unviable.

In hindsight, the writing was clearly on the wall for the Humboldt nuclear power plant facility with Tom Collins' fault discovery. Subsequent investigations would show the traces of three faults near Buhne Point. Gary Carver, Bud Burke, and their students' research would demonstrate the Little Salmon fault to be one of the most active thrust faults in California, capable of producing earthquakes in the upper 7 range.

The decision to close the plant isn't the end of the story. The decommissioning process provides several more chapters and of course, the waste is still stored on site.

Note: View historic photos and an overview of the Buhne Point PG&E site production

<http://lcweb2.loc.gov/master/pnp/habshaer/ca/ca3800/ca3878/data/ca3878data.pdf>

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