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## **Three Mile Island: 30 years of what if ...**

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SWATARA TOWNSHIP — One spring day 30 years ago, Mary Osborn rose early to share breakfast with her husband before he left for an out-of-town construction job. At his car just before 6 a.m., he called her name.

"He said, 'Come out here and smell the air.'" Osborn recalled. "Sometimes we could smell the chocolate from the Hershey's factory, or the cows up on the hill." She walked outside and was struck immediately by a sharp metallic tang.

"The air was still. There were no birds. Usually at that time of year, they're chattering away in the morning," Osborn said. "All we could smell and taste was metal."

Seven miles away on the Susquehanna River, the worst nuclear accident in U.S. history was underway at Three Mile Island. On March 28, 1979, worker mistakes compounded equipment malfunctions, triggering a partial meltdown of the reactor core in Unit Two. For five frightening days, state officials, the U.S. Nuclear Regulatory Commission, and the plant's owner, Metropolitan Edison Corp., struggled to halt the meltdown.

Confusing and contradictory statements to the public sowed fear, which gave way to panic. Already on edge from the debut days earlier of "The China Syndrome," a film about a nuclear plant disaster, about 200,000 residents evacuated their homes.

A commission appointed by President Jimmy Carter later declared the health impact minimal although the stress on residents was "quite severe." Many studies found the accident did not increase cancer rates. A few concluded the opposite.

### **Dramatic reversal**

The meltdown spawned a powerful anti-nuclear movement that sidelined the industry for decades. Unit Two never reopened after a \$1 billion cleanup, although adjacent Unit One, now owned by Exelon Corp., produces power for 800,000 homes in three states.

Improvements in plant design and worker training, along with a reconsideration of nuclear power as a cleaner alternative to coal-generated electricity, have led to a dramatic reversal in the past several years. Thirty plants are planned for the United States, and Monroeville-based Westinghouse Electric Co. has secured billions of dollars in design contracts.

For many residents in south-central Pennsylvania, however, distrust and skepticism lingers.

"It was a traumatic moment, a mark on our lives," said Pattie Longenecker, a farmer living three miles from the plant. "You will never hear a person who got sick, or a parent of a sick child, who doesn't question whether the illness was related to that incident."

The meltdown began at 4 a.m. on a Wednesday. Pumps in the plant's turbine building stopped feeding water to a steam generator in the reactor building of Unit Two. Coolant stopped flowing to the reactor core, where uranium was heated to 600 degrees. The reactor shut down, but pressure continued to build in its concrete housing.

A safety valve opened to relieve the pressure but remained stuck, even though indicators showed it to be closed. Cooling water flowed out of the valve for hours, causing the nuclear fuel to overheat. Plant operators, relying on instruments that didn't reflect the situation, compounded the problem by reducing the flow of coolant to the core.

The metal tubes holding nuclear pellets ruptured, and the core began to melt. Toxic xenon, krypton and iodine gases escaped into the atmosphere at levels too high for the plant's radiation monitors to measure.

### **'Chaotic situation'**

Ten miles north in Harrisburg, Gov. Dick Thornburgh — on the job for just 72 days — was at a breakfast meeting with Democratic lawmakers to discuss his proposed budget. At 7:50 a.m., he was interrupted by a phone call from his emergency management director.

"He said there'd been an accident, but he had no more details," Thornburgh, a native Pittsburgher who later became U.S. Attorney General, said in a recent interview. Lack of timely, accurate information turned out to be one of the principal challenges in the days ahead.

"We were plagued with the fact that the utility was not terribly forthcoming ... and oftentimes wildly swung from telling us more than they knew to less than they knew," Thornburgh said. "It was a pretty chaotic situation."

If such a radiation release occurred today, Exelon Corp. officials say 96 sirens in a 10-mile radius would wail, alerting residents to turn on their TVs and radios. Residents likely would be advised to stay inside with their windows closed.

But no such community emergency plan existed back then, said Robert Reid, mayor then and now of Middletown, the nearest large town to the plant. Reid, who emerged as the most visible local elected official during the crisis, said he had initiated meetings for such a plan upon taking office a year earlier. But the process was still in its nascent stages and MetEd reacted with condescension, he said.

"They never came into town and said, 'We want to work up an emergency plan with you,'" Reid said. That would have suggested that an accident was possible. "They always guaranteed that no accident could ever take place at a nuclear plant. Communications (were) very, very poor."

### **Initial calm**

So as the sun rose and the metallic odor dissipated, locals flung open their windows to one of the season's first sunny days. After her daughter Leslie, 9, left for school, Mary Osborn took her son Nicholas, 2, to a neighbor's house to play in the yard with several other toddlers. Although she stood in the shade of the garage, both she and her son's faces and hands had turned red by the time they returned home an hour or so later. Today she believes that was erythema, a symptom of radiation exposure.

The day after the meltdown was relatively calm, residents recall. At a news conference that evening, a federal official went so far as to say the threat was over. Thornburgh was unconvinced.

"I didn't know at the time that wasn't totally correct," he said. "But it seemed to be an unusually rosy assessment."

About 8 a.m. Friday, emergency management helicopters swirled over the cooling towers of damaged Unit Two, taking radiation readings. Unbeknownst to emergency officials, Metropolitan Edison had chosen that time to vent the built-up radioactive gases into the atmosphere.

The readings were more than three times what an average American is exposed to in a year. An NRC executive mistakenly believed the readings had been taken downwind in residential communities, and called for an immediate evacuation. Radio and TV stations spread the word before officials realized the mistake.

"All hell took loose," Thornburgh said. He struggled to clarify matters to the public, and later that morning called for a limited evacuation of pregnant women and small children living within a five-mile radius of the plant. But by then, nearly everyone was on the move.

### **Panic strikes**

Reid recalls lining up buses along Main Street in front of Middletown Borough Hall that morning.

"People were leaving town in droves. There were long lines of traffic, and people hollering 'Watch the town! Watch my house!' " he said. "The bank branch manager told me they had to send for money a couple times. One man had \$85,000, and he wanted it all, cash money."

More panic struck Saturday when rumors circulated that a hydrogen bubble inside the reactor vessel could soon explode. The absence of oxygen in the vessel made that impossible, and the hydrogen slowly abated, but fears of a nuclear holocaust did not begin to subside until Carter arrived on Sunday to tour the hobbled power plant. Five days later, on Friday, April 6, Thornburgh gave the all-clear.

Back home after nine days, Mary Osborn towed off her son following a bath and found a wad of his hair in the tub. "You could see his scalp, where before you could not," she said. In the months to come, neighbors would share similar stories.

Surveys by residents in the region found hundreds of people who said they experienced the metallic taste, reddened skin, hair-loss and vomiting — all symptoms consistent with high-level radiation exposure. Osborn keeps an album of local photos taken from those years: a poodle born without eyes, a two-headed calf; images of plants that grew with flattened stems, or extra blooms.

### **Conflicting opinions**

The NRC estimates 2 million people were exposed to radiation averaging one-sixth the amount from a chest X-ray. The effects on people and the environment were "negligible," it said.

A 1997 analysis by epidemiologist Steven Wing at the University of North Carolina, however, found that lung cancer and leukemia rates downwind of the accident were two- to 10-times higher than those upwind. While those cases might not have been caused by radiation releases from the plant, Wing thinks it's worth further study.

The meltdown at Three Mile Island is "frequently raised as the example that no one has ever been hurt by a nuclear accident in the United States," Wing said. "I think there's strong evidence to suggest that people were hurt."

The plant operator and its insurers paid at least \$82 million in publicly documented compensation to residents for loss of business revenue, evacuation expenses and health claims, said Eric Epstein, an activist with Three Mile Island Alert, a nuclear watchdog group founded in 1977. He and other residents estimate much more was paid in confidential claims. A 16-year legal battle to bring a class-action lawsuit on behalf of 2,000 residents ultimately was rejected by federal judges.

The Unit One reactor resumed operating in 1985, and residents say they recognize it is here to stay. Three Mile Island Alert has opted not to oppose Exelon's application to relicense the plant through 2034.

But many locals say no new reactors should be built until the government comes up with a long-term solution for waste storage. President Barack Obama's newly proposed budget offers no money to use Nevada's Yucca Mountain, and Energy Secretary Stephen Chu says the controversial location is no longer an option.

"The waste is the bottom line," said Helen Hacker, 82, of Etters, seven miles northwest of Three Mile Island. Nine neighbors along her road died of cancer, as did her daughter Patty Burkholder, two days after her 40th birthday. "I do blame it on the radiation. I hope that the government will see the truth. They should think carefully about what to do with the waste."

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