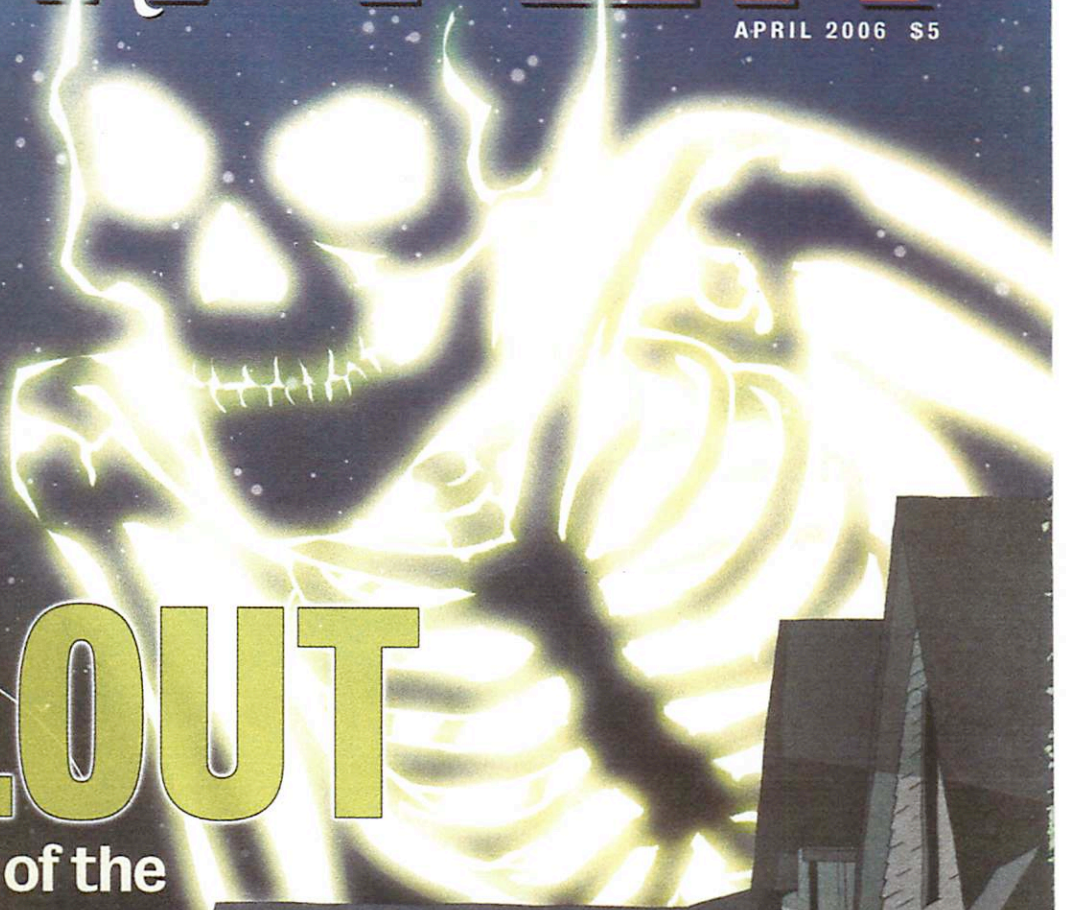
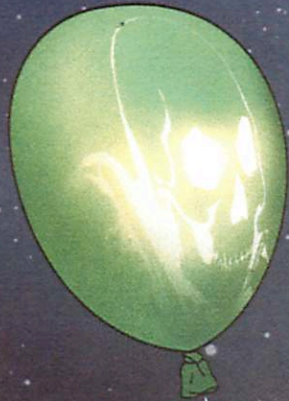


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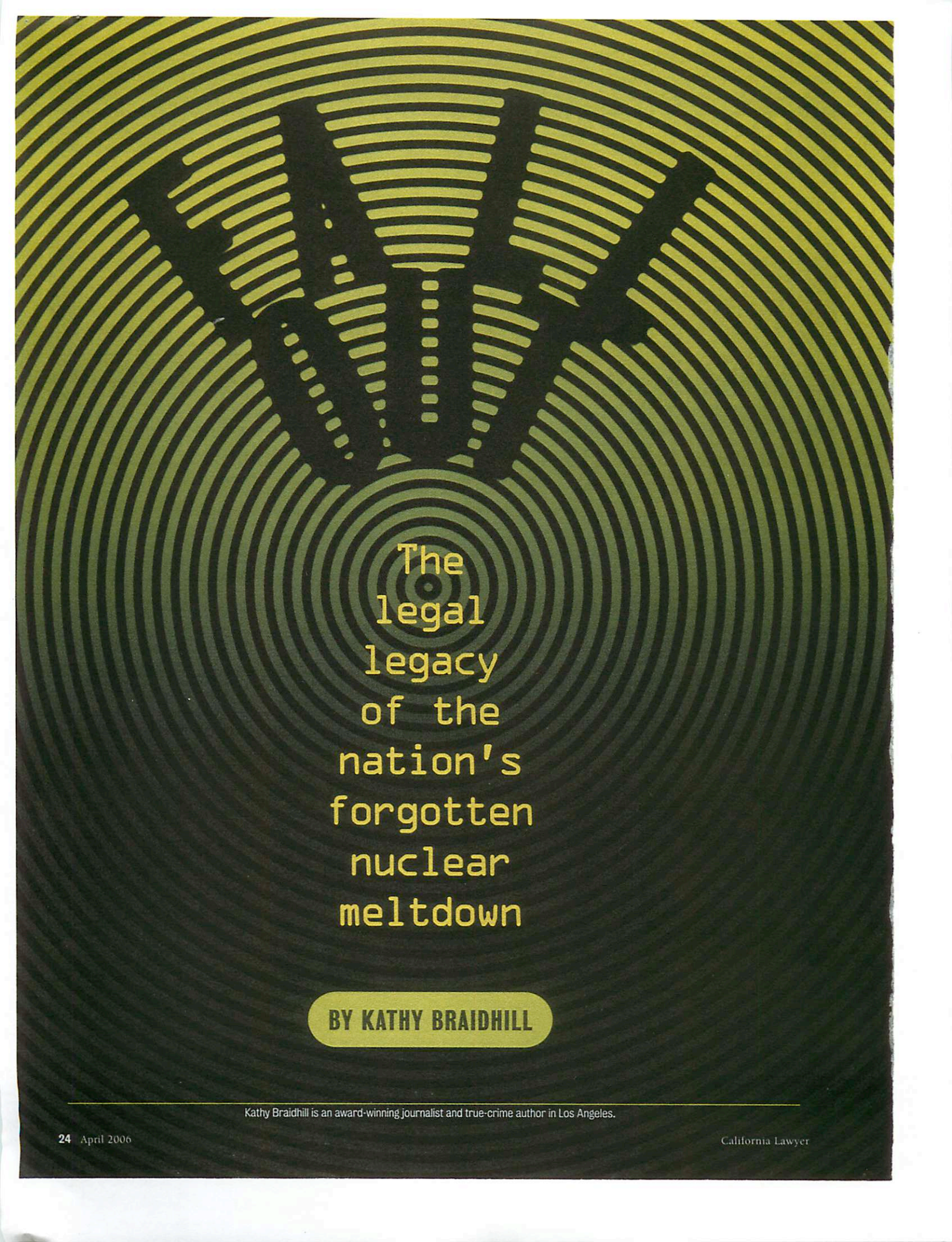
FALLOUT

The legal legacy of the nation's forgotten nuclear meltdown

WHY AMERICA NEEDS MORE TRIALS

IS THE BILLABLE HOUR RUNNING OUT OF TIME?





The
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BY KATHY BRAIDHILL

Kathy Braidhill is an award-winning journalist and true-crime author in Los Angeles.



No containment structure enclosed the nuclear reactor at the Santa Susana Field Laboratory in the summer of 1959, when a partial meltdown spewed radiation over the surrounding communities in Ventura and Los Angeles counties. Here, after the accident, a technician crouches atop the reactor with a Geiger counter.



HUGE OAK AND EUCALYPTUS TREES SHADE HOLLY HUFF'S CANYON home, which sits against terraced plots stair-stepped with river stones against the side of a hill. You can't see the top of the hill from Huff's backyard or from most points in Susana Knolls in Ventura County, where tiny, 1920s-era cabins coexist with suburban stucco houses. But from the summit a small creek trickles down past her front door and around to the back.

Only two roads climb the hilltop. Last fall's brush fires chewed away Black Canyon Road near Huff's house, so to get there you have to drive around the hill and take the road on the Los Angeles County side.

The somber terrain reveals where flames licked away the dusty scrub and left their ghostly marks on the sandstone boulders that loom larger as you get closer to the top. Moviemakers and cult members alike have found these mountains irresistible. The road takes you past the rusted remnants of a 1940s cult encampment and close to Spahn Ranch, a favorite of filmmakers long before Charles Manson and his followers used it for a hideout in the late sixties.

Against these hills, Clayton Moore would, at the beginning of every *Lone Ranger* episode, call out from atop his white horse, "Hi ho, Silver." Gene Autry, Hopalong Cassidy, John Wayne, and James Arness also left their boot prints here.

But instead of movies, this storied landscape now produces lawsuits. At least eight have been filed over the past ten years, alleging wrongful deaths and felonious corporate conduct. The claims have spawned fines and settlements in the millions.

In the late 1940s, Atomics International (AI), a government contractor, built a hilltop facility called the Santa Susana Field Laboratory to test rocket engines. Hoping to capitalize on the newly realized power of the atom, the company also built ten experimental nuclear reactors there. But in 1959, just 18 months after one of those reactors began operations, it had a meltdown, raining radioactive compounds on the neighborhoods below. Details of the

incident remained shrouded in secrecy for 20 years—until Pennsylvania's Three Mile Island nuclear disaster in 1979, after which a student activist unearthed government records detailing what happened at Santa Susana.

The records also showed that AI's rocket-testing programs had produced tons of hazardous waste, which was illegally dumped into large, unlined sludge pits that were incinerated nightly. Hazardous waste also was detonated. In the ensuing years, AI and its successor companies were fined again and again for these practices.

In 1994 an explosion at the rocket lab killed two scientists and severely injured a technician. Rockwell International, which then owned the facility, was fined \$6.5 million and pleaded guilty to three felony counts of mishandling hazardous waste. In 1997 a UCLA study showed that lab employees had triple the cancer death rate of the general population. And just two months ago a pair of studies—paid for by the federal government, one conducted by the University of California, the other by the University of Michigan—were released, showing elevated cancer rates among people living within two miles of the facility. Especially alarming was the frequency of melanoma and bladder cancers.

Today, many of AI's original buildings are gone, the nuclear facilities have been decommissioned, and the rocket-testing equipment has been hauled away. Still, secrecy pervades the Santa Susana Field Laboratory, which is now owned by Boeing and surrounded by fences and guards. (Spokespeople for the company refused several requests by this magazine to view the 2,800-acre site.)

Because data going back to the 1940s remain under

seal, it's difficult to assess the magnitude of the contamination. But since 1990, close to a quarter billion dollars in taxpayer money has been spent cleaning up Santa Susana's radioactive waste.

In the latest lawsuit, two environmental groups, the Natural Resources Defense Council (NRDC) and the Committee to Bridge the Gap, joined by the city of Los Angeles, sued the Department of Energy (DOE) to compel compliance with environmental cleanup standards set by the Environmental Protection Agency (EPA). (*Natural Resources Defense Council v. Department of Energy*, C 04-4448 SC (BZ) (N.D. Cal.).)

At the heart of the current litigation is the question of how much nuclear contamination should remain on the property. The DOE, according to the lawsuit, had earlier agreed to the stricter EPA standards but later decided to allow 99 percent of the hazardous material to remain. The DOE also has refused to conduct comprehensive tests of the soil and groundwater that the EPA says are necessary to determine the amount of hazardous material on the property. For most radioactive elements, the levels that the DOE's guidelines allow are between 5,000 and 700,000 times higher than the EPA's preferred cleanup levels.

"These are the numbers that led to the lawsuit," says Daniel Hirsch, president of the Committee to Bridge the Gap, a long-time watchdog of the site. "It's not a dispute over a factor of two or three, it's a dispute over leaving behind thousands to hundreds of thousands of times more than what the EPA permits."

Neither Boeing nor the previous owners of the property are parties to the current lawsuit, despite being snarled in litigation for decades with residents who claimed their cancers, other illnesses, and loved ones' deaths were the result of the carcinogens that the facility's operations exposed them to. One such case, litigated on behalf of 133 residents and their families in a pitched, eight-and-a-half-year battle by Cappello & Noël of Santa Barbara, settled last fall for a reported \$30 million.

After two years of asking, Holly Huff still hasn't received the results of toxicological tests—performed by a private company at Boeing's behest—on the stream running through her yard.

However, tests of groundwater and soil on two proposed housing developments adjacent to the Boeing site have been made available to the public. On the Los Angeles County side of the hill, levels of perchlorate were measured as high as 60,000 parts per million. (In drinking water, by contrast, the state's public health goal is 6 parts per billion.) Radioactive Strontium 90, a byproduct of nuclear fission, was found in Ventura County outside the lab property as high as 237 times above normal background levels.



uly 1959. There was no menacing buzzer, no bright, flashing warning lights. The Santa Susana nuclear reactor, one of the first to be built at the dawn of the atomic age, was eerily silent. But the instruments in the control room showed the workers that they had something to worry about.

The reactor, like those at most of today's nuclear power plants, used the enormous energy from nuclear fission to generate heat, which in turn propelled the steam turbines that generated electricity. Unlike today's facilities, however, Santa Susana's reactor vessel had no airtight system to prevent the spread of radiation. Instead, it sat in the middle of a corrugated metal warehouse, surrounded by offices.

The 7.5-megawatt nuclear reactor was the pride of AI, which made history when, during a live broadcast of Edward R. Murrow's television show *See It Now* on November 12, 1957, it became the first civilian reactor to be the sole source of electricity for an entire city, nearby Moorpark. But in the midst of the meltdown, pride turned to fear.

On the day of the meltdown the workers, baffled by

"It's a dispute over leaving behind thousands to hundreds of thousands of times more contamination than the EPA permits."

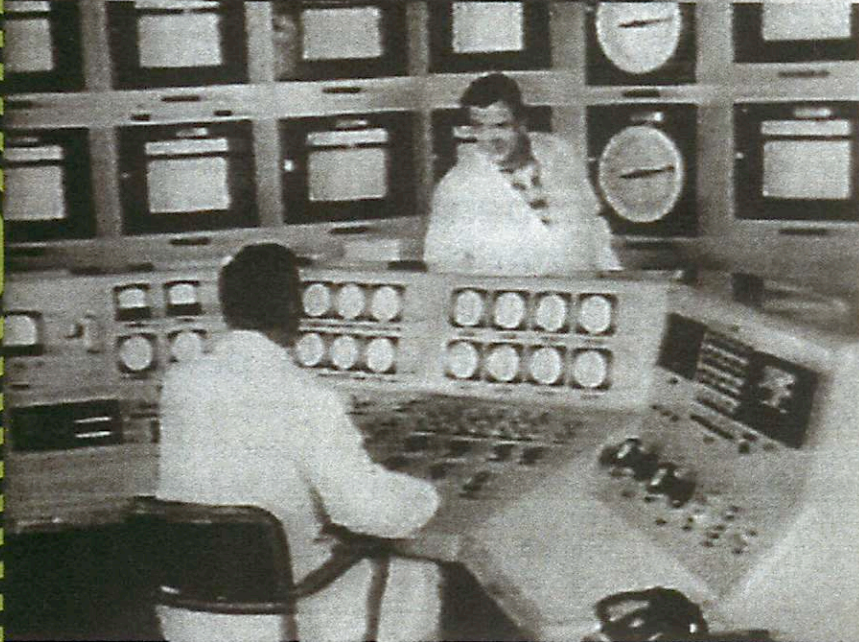
indications of radiation levels too high for their instruments to measure, shut down the reactor, then started it up again just 90 minutes later—a move that, upon review, stunned Atomic Energy Commission officials. Ignoring the alarming radiation levels, power spikes, and wild fluctuations in temperature indicating severe reactor problems, the AI crews ran the reactor for another two weeks. Finally, as the instrument readings spiraled chaotically, workers shut down the reactor.

By the time John Pace wheeled his blue Chevy convertible into the parking lot at the lab, his coworkers were gathered in grim clusters, relieved that they had been able to shut the reactor down. At 19 and fresh out of high school, the skinny trainee had worked for nine months learning the ropes as an assistant reactor operator. Pace was newly engaged to his high-school sweetheart and had just purchased a home nearby; he looked forward to working in what he thought was a promising new field.

After an accident like this, "people stand around and talk about how lucky they were that they didn't die," says Pace, who is now 66 and living in Idaho. "They knew it was very serious and were happy that they were able to get the thing under control and not have it melt down altogether. Like in



After the meltdown, Atomic International technicians John Pace (left) and a colleague adjust the reactor core lid so they can look inside to retrieve radioactive pieces of fuel elements. During the accident, levels of radiation were so high they could not be measured by instruments in the control room (below).



Huff also was intrigued by the goings-on up the hill. From her backyard, she could see the big trucks that always seemed to be heading up the winding road carrying equipment. She viewed the parade of heavy machinery and the vague outlines of buildings on the summit with a mix of curiosity and dread.

“What I remember was that it was some scary, secret place. Everyone knew it was top secret. These were the days when we had to do those drills in school, where you’d drop underneath your desk, then cover your head and cross your arms, as if that was supposed to stop the radiation from getting you.”

By 1972 Huff and her then-husband had moved to her present home in Ventura County, on the other side of the hill. Many of their neighbors worked at the lab, owned at that time by Rocketdyne. She was surprised at a homeowners association meeting in the early 1980s when two Rocketdyne representatives gave a presentation, on the heels of the Three Mile Island disaster.

Huff recalls that the gist of the

the movies, in the last few seconds, they managed to shut it down before they got to the point where they couldn’t.”



olly Huff was eight years old when her family moved to the area in June 1959. Their house was near the neighborhood grocery store, and the family next door had nine children she could play with. But the showstopper for the girl was visiting Roy Rogers and Dale Evans—on horseback—with her friend, who went to the same church as the famous couple.

“We went riding one day over to his house, and we were met by Bullet, his real dog!” she remembers. “Dale Evans was in the kitchen, and she was real nice. I was so starstruck.”

message was “everything was OK, and there was nothing to be worried about. They said we’d get more radiation from flying over Denver in an airplane than from eating cabbage grown from our burn pit. They said everything was fine and that they were taking good care of us.”

Meanwhile, DOE officials advised residents to wait for studies showing whether radiation exposure had caused any illnesses before taking legal action. Then in 1997 the UCLA study came out showing that, compared with the least exposed, the most-exposed lab workers at Santa Susana had triple the death rate from certain cancers. (The UCLA study looked at radiation badge data—supplied by Rocketdyne—from 4,563 workers employed at the site between 1950 and 1993.)

Several rounds of personal injury lawsuits followed. Some of them were dropped, and others were consolidated

Film stills from *The Sodium Reactor Experiment*, 1951, produced by Atomic International for the U.S. Atomic Energy Commission

LEGAL FALLOUT

A sampling of legal actions resulting from Santa Susana Field Laboratory operations

HEINEY V. ROCKWELL INT'L.

The family of scientist Otto K. Heiney filed a \$25 million wrongful death action after he and Larry A. Pugh were killed in a July 1994 chemical explosion at the lab that also seriously injured a lab technician.

Filed: July 1995 in U.S. district court

Status: Settled December 1996 under confidential terms

Representation for plaintiffs: Stanley J. Bell

UNITED STATES V. ROCKWELL INT'L

Following the explosion that killed Heiney and Pugh, a task force that included the FBI, Pentagon, Air Force, Navy, and state and local officials conducted a 21-month probe of the lab. At its culmination, the lab pleaded guilty to three felony counts of illegal storage and disposal of hazardous waste.

Status: Guilty plea and \$6.5 million fine on April 11, 1996

BRANDEIS-BARDIN INST. V. ROCKETDYNE, INC.

The Brandeis-Bardin Institute next to the lab claimed that contaminated groundwater had polluted and devalued its property.

Filed: December 14, 1995, in U.S. district court

Status: Settled March 2, 1998, under confidential terms

Representation for plaintiff: Helen Zukin

O'CONNOR V. BOEING NORTH AM.

A tort action on behalf of 133 residents living near the lab claimed that radiation and chemical dumping at the lab was responsible for wrongful deaths and cancers.

Filed: March 10, 1997, in U.S. district court

Status: Settled September 21, 2005, under confidential terms

Representation for plaintiffs: Cappello & Noël; Gancedo & Nieves

WAUGH V. BOEING NORTH AM.

A group of residents who lived near the lab sued it directly for injuries caused by polluted groundwater.

Filed: June 5, 1997, in U.S. district court

Status: Dismissed September 17, 1997

Representation for plaintiffs: Helen Zukin

MCKELVEY V. BOEING NORTH AM.

Four separate actions alleging injuries including cancers and death from toxic exposure involving several hundred plaintiffs—former workers and those who owned and occupied property near the lab—were ultimately combined. (*McKelvey v. Boeing North Am.*; *Aurness v. Boeing North Am.*; *Boeing v. Superior Court of Los Angeles Cty. (Adams)*; *Boeing North Am. v. Superior Court of Los Angeles Cty. (Davis)*.)

Filed: Various dates, beginning October 22, 1997, in Second Appellate District Court

Status: Actions barred by statutes of limitations in combined case, *McKelvey v. Boeing North Am.*, 74 Cal. App. 4th 151, decided June 29, 1999

Representation for plaintiffs: Engstrom, Liscomb & Lack; Girardi & Keese; Masry & Vittoe

ENVIRONMENTAL WORLD WATCH V. ROCKETDYNE

An environmental group alleged that the lab polluted groundwater without warning surrounding communities.

Filed: September 16, 1998, in Los Angeles Superior Court

Status: Dismissed January 24, 2001

Representation for plaintiffs: Weinreb, Weinreb & Mandell

UNITED STATES V. FLANAGAN

In April 1999 a federal grand jury indicted lab executive Joseph Flanagan and two subordinates, James Weber and Edgar Wilson, on felony charges of violating the Federal Resources Conservation and Recovery Act for their roles in the deadly blast of July 1994. The jury hung on the charges. All three pleaded guilty to misdemeanor charges of illegally storing explosives. Weber's plea was entered before trial.

Status: Three guilty pleas for misdemeanors; Flanagan and Weber were fined \$5,000 each and sentenced to a year of probation; Wilson was fined \$100 and sentenced to a year of probation.

NEIL V. BOEING NORTH AM.

Motley Crue rocker Vince Neil, who lived nearby, sued the lab after his four-year-old daughter, Skylar, died of liver cancer in 1995.

Filed: August 13, 1999, in U.S. district court

Status: Terminated November 28, 2000

Representation for plaintiffs: David Cordrey

FEDERAL LEGISLATION

On September 14, 2000, Congress passed the Energy Employees Occupational Illness Compensation Act (Pub. Law 106-398) to compensate "individuals employed in connection with federal nuclear weapons programs who sustained occupational illness in the line of duty." The legislation explicitly acknowledges that "numerous previous secret records documented unmonitored toxic substances' exposures and continuing problems at the Department of Energy and vendor sites" and recognizes that "state workers compensation programs are not a uniform means to provide adequate compensation" for those injured. Workers at the Santa Susana Field Lab have filed 527 claims under the act; compensation has been awarded in only 18 of them.

COMMITTEE TO BRIDGE THE GAP V. BONTA

During cleanup, the lab hauled some nuclear waste to repositories licensed for storing radioactive waste, but 6,000 tons of low-level radioactive materials were dumped in a suburban landfill. Environmental groups sued the state Department of Health Services, and a judge set aside the less stringent cleanup regulations DHS had adopted.

Filed: March 29, 2002, in Superior Court of California, Sacramento

Status: Ruling on April 11, 2002

Representation for plaintiffs: Laurens H. Silver

NATURAL RESOURCES DEFENSE COUNCIL, INC. V. DEPARTMENT OF ENERGY

The long process of environmental cleanup spawned a lawsuit when the Department of Energy (DOE), which maintains jurisdiction over properties involving past nuclear activities, clashed with the Environmental Protection Agency, which established cleanup guidelines for toxic sites nearly a decade ago. Though Boeing is the subject of the suit, it is not a party to the lawsuit, which alleges inadequacies in the DOE's environmental and biological analyses and in the proposed cleanup of the site.

Filed: October 21, 2004, in U.S. district court

Status: Ongoing

Representation for plaintiffs: Meyer & Glitzenstein; Natural Resources Defense Council

into major claims represented by Santa Barbara's Cappello & Noël and by well-known Los Angeles-area toxic tort litigators Edward L. Masry at Masry & Vititoe (of *Erin Brockovich* fame) and Thomas V. Girardi of Girardi & Keese. Among the 150 residents represented in the Masry-Girardi claim was James K. Arness, aka James Arness of the TV series *Gunslinger*, which had been filmed in the area. (Arness also starred in a 1954 sci-fi film called *Them!*, in which radiation from bomb tests creates giant mutant ants.)

However, attorneys for Boeing, which acquired the lab in 1996, challenged the litigants on statute-of-limitation grounds. The residents, it charged, knew or should have known that the toxins were hazardous, despite assurances by various officials. Boeing was represented by Brad D. Brian, Stephen M. Kristovich, and Bernardo Silva of Munger, Tolles & Olson, and Gordon C. Atkinson and Kathleen A. Howard of Cooley Godward.

Hirsch, of the Committee to Bridge the Gap, sees striking similarities between what Boeing did in response to the personal injury claims and how the tobacco industry behaved when it came under attack. "The first message from lab officials was that no one could be hurt by these chemicals," he says. "Then, after the lawsuits were filed, they said you should have sued earlier and not believed anything they were saying about

company is committed to the cleanup, and we are moving in that direction."

The future of the Santa Susana Field Laboratory remains in limbo, although, according to DOE guidelines, homes could be built on the site as long as certain conditions are met. For example, each home would have to have a concrete-slab foundation at least four inches thick. Also, each home would need two stories, with all sleeping quarters on the upper floor. However, if the current suit by Hirsch's group succeeds, no homes could ever be built there until a protective cleanup is completed.



I eventually concluded that the 1959 meltdown was caused when the sodium coolant circulating in the reactor got blocked, causing the fuel rods to overheat and partially melt; that allowed radioactivity to escape from the fuel elements. One-third of the fuel elements showed signs of melting, leaving dozens of broken bits of the fuel rods scattered at the bottom of the 27-foot deep reactor. Ultimately, the amount of deadly radiation released from Santa Susana was estimated at 15 to 260 times the radiation from the 1979 meltdown at Three Mile Island.

But, Pace recalls, once the immediate crisis was over and the reactor was disabled, the AI workers' concerns shifted from their own physical safety to job security. "First, we had the excitement of making it through the accident," he says. "Then everyone was on pins and needles, wondering what would become of the reactor. Is this it? Will we try to repair something?"

In the weeks that followed, AI assembled inspection teams to examine the reactor and determine the extent of the damage. AI even made its own movie about the accident to showcase the company's problem-solving prowess. However, with the benefit of hindsight, much of the footage is chilling. It shows men working next to the open reactor without protective gear. In one scene, a worker clad only in a white jumpsuit and a cap emblazoned with the company's slogan, "Safety Is Our Business," peers directly into the open reactor vessel.

The postaccident cleanup dragged on for months as workers faced the dangerous task of plucking the fuel rod pieces from the depths of the reactor. Engineers fashioned elaborate devices to help the workers see the fuel pieces they were fishing for. One such apparatus lowered a telescope and lights down into the reactor; another used a television camera. A long-handled device was jury-rigged into an extended grappling hook to pluck out bits of fuel, and another tool had a clamshell spring clamp.

Still, there were mishaps. On one occasion, workers

The amount of deadly radiation released from Santa Susana was estimated at 15 to 260 times the level from Three Mile Island.

the safety of living next to the lab."

Following the advice of DOE officials, residents delayed legal action until after the UCLA study was completed in 1997, only to be told by a state court judge that the residents had waited too long. In 1999 the Second Appellate District Court agreed with Boeing and dismissed four separate lawsuits that had been combined into one. (*McKelvey v. Boeing North Am., Inc.*, 74 Cal. App. 4th 151.) That left only the lawsuit filed by Cappello & Noël, which had already survived a similar legal attack in federal court. In the meantime, Boeing entered into a confidential settlement agreement with its next-door neighbor, the Brandeis-Bardin Institute, a Jewish camp and educational facility. The institute sued in 1995 after determining that the groundwater on its property had been contaminated with toxic chemicals from the facility, which diminished the value of the property.

Inger Hodgson, Boeing's manager of environmental communications, says Boeing will not comment on litigation. "We are working with a lot of regulators regarding cleaning up our site. We're doing the best we can. Our

successfully retrieved a fuel rod, only to drop it on the cement floor, where it shattered. That forced everyone to evacuate the building and start the cleanup all over again. And because of the high radiation levels, the very devices that made the cleanup possible had to be discarded as radwaste.

Pace recalls one particularly frightening incident involving the use of a "coffin"—a large mechanical device that resembled scaffolding, with a lead shield to block the escape of radiation. In one attempt to remove a fuel rod, a piece broke off and got stuck inside the coffin. That was when the operator panicked, pushed the wrong button, and lifted the lead shield, exposing the entire building to radioactive contamination. "Everyone in the building ran for it," Pace says.

Once the building was saturated with radiation, every office chair, desk, table, and filing cabinet, mounds of paperwork, and even employees' personal belongings were carted from the building and stacked in a huge rubbish heap outside, behind red caution tape. With the building stripped of furniture, Pace's new assignment was to clean its interior. In white coveralls and boots, he used chemicals and a fleet of mechanical scrubbers to attempt to remove contamination from the ceilings, walls, and floors. But the machines themselves quickly became contaminated and had to be discarded. (Within weeks, more than 50 scrubbers had been tossed on the growing pile of contaminated detritus next to the building.)

With the cost of the mechanical scrubbers mounting, Pace switched to sponges. "Then someone got the brainy idea of using Kotex pads," Pace remembers. "It was cheaper."

Pace and a coworker used hundreds of boxes of the sanitary napkins to scrub the place down. The pads were placed in plastic bags and added to the pile outside.

After months of work, the crews had retrieved more than 81 pieces of uranium fuel and numerous scraps of cladding from the depths of the reactor. Of the 43 fuel rods, 13 had been destroyed.

By then, Pace had married and moved with his wife, Geneva, into their new home. The reactor was brought back online, but within a few months Pace and several other workers were laid off, leaving just a skeleton crew. His bosses told him it was nothing personal.

As it turned out, losing that job may have saved Pace's life. But when he and Geneva tried to start a family shortly after he got hired at a Chevrolet assembly plant, she suffered a series of five miscarriages. Pace believes that Geneva was contaminated with radiation when she laundered his work clothes from the lab. Then in the mid-1970s she battled breast cancer. Pace himself suffers from a lingering respiratory condition for which no cause has been definitively determined.



ong before the reactor site belonged to Boeing, it was known by its earliest human inhabitants as Huwam. The Chumash Indians lived there in rock caves for generations and left unique paintings on the cave walls. The pictographs on the Boeing property were closed to public viewing long ago. But each year during the winter solstice, slivers of sunlight strike the paintings, illuminating the Chumash's version of a calendar.

Today, the fate of this land rests in the hands of federal administrators and a judge. Although the outcome of the pending lawsuit filed by Bridge the Gap and the NRDC will determine the extent of any further cleanup at Santa Susana, and thus the site's future habitability, the case may become a legal bellwether for battles over contamination at more than two dozen other nuclear sites across the country.

"If [the courts rule that] you can house people on top of a meltdown site, you can pretty much ignore contamination on every other nuclear site in the country," says Hirsch, of Bridge the Gap.

In the course of discovery for the Cappello claim that was settled last fall,

Boeing turned over documents detailing both the meltdown and other nuclear and chemical releases. These were compiled into a digitized database. However, public access to many of these critical documents seems unlikely because Boeing insists they remain secret.

It may be some time before there's an end to the Santa Susana litigation. Boeing tore down dozens of buildings, including the one that housed the doomed reactor. Though the most radioactive portions of the structure were sent to a facility licensed to handle high-level radioactive waste, 6,000 tons of lower-level radioactive building detritus were dumped into local landfills close to homes and schools. In 2003 a Sacramento judge ordered a halt to such dumping statewide. Still to be sorted out by administrative agencies are nearly 350 workers' compensation claims from either former employees with cancer or their survivors.

To date, only two employees have been compensated, and others have had to refile their claims after the federal government adjusted its procedural requirements. New federal guidelines allow employees to be awarded up to \$150,000, but the complex administrative process has dragged on for years.

Holly Huff never worked at the lab, nor is she a party to any of these claims. Also, no one in her family has been stricken with cancer, but she worries about her two grown children. Over on the L.A. County side of the hill, one street has at least one cancer victim in each home. A California Department of Health Services study found elevated bladder and other cancer rates in that county's census tracts closest to the reactor site. On some blocks, thyroid cancer predominated. In another area, researchers found a cluster of child cancers. And close to Huff's house, a young woman who had lived in the neighborhood since she was a child developed a brain tumor at age 26.

"I don't know," Huff shrugs, "I guess it depended on which way the wind blew." 