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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

DOCKETED
USNRC

Before Administrative Judges:

'96 MAR 11 P2:46

Charles Bechhoefer, Chairman
Dr. Jerry R. Kline
Dr. Peter S. Lam

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

In the Matter of

Docket No. 50-160-Ren

GEORGIA INSTITUTE OF TECHNOLOGY
RESEARCH REACTOR
Atlanta, Georgia
Facility License No. R-97

ASLBP No. 95-704-01-Ren

GEORGIANS AGAINST NUCLEAR ENERGY MOTION TO COMPEL THE NRC
TO RELEASE REBECCA LONG'S DOCUMENTS CONCERNING GANE'S CONTENTION
THAT MANAGEMENT PROBLEMS AT THE GEORGIA TECH RESEARCH REACTOR
ARE SO BAD THAT LICENSE RENEWAL MUST BE DENIED
TO PROTECT THE HEALTH AND SAFETY OF THE PUBLIC

Georgians Against Nuclear Energy (GANE) respectfully submits this request to compel the NRC staff to fulfill GANE's request for information pertaining to our contention that management problems at the Neely Nuclear Reactor Center are so serious that safety of the public cannot be assured. The documents GANE is interested in compelling the NRC to provide, in particular, are the documents related to Rebecca Long, NRC Region II Inspector. This request was originally made on June 5, 1995, in request #83 to the NRC:

83. All records, reports, correspondence, internal memoranda, and other authored by, submitted by, signed by, pertaining to NRC Region II Inspector Rebecca Long as relates to the Neely Nuclear Research Center

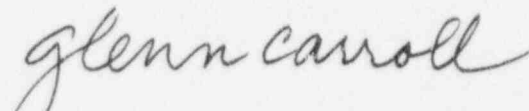
In the NRC's response to our request for production of documents, dated July 7, 1995, the NRC staff objected to GANE's request and was unable to see the relevance of GANE's request. GANE maintains that the

pertinence of Rebecca Long's experience inspecting the Georgia Tech Research Reactor to our contention concerning management problems at the reactor is obvious.

GANE attaches the recent article from ~~Time~~ which evidences collusion between the NRC and its licensees. GANE needs to see the entirety of documents subpoenaed from Ms. Long in response to GANE's discovery request to establish whether such regulator collusion has operated with Georgia Tech. Ms. Long has alluded (see the newspaper articles attached to our discovery response) to a "good old boy network" which has covered up safety problems at Georgia Tech. GANE seeks to discover whether a serious situation of mismanagement and uninvestigated safety issues threatens the health and safety of the Atlanta population surrounding the reactor.

GANE looks forward to a rapid and favorable response from the NRC releasing the important Rebecca Long documents for our review.

Respectfully submitted,



Glenn Carroll

Representative for GANE

Dated and signed March 8, 1996
in Decatur, Georgia

MARCH 4, 1996

TIME

THE CASE
AGAINST
BUCHANAN



George Galatis
at Millstone
in Connecticut

SPECIAL INVESTIGATION

BLOWING THE WHISTLE ON NUCLEAR SAFETY

How a showdown at a
power plant exposed
the federal government's
failure to enforce
its own rules



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SPECIAL
INVESTIGATION

NUCLEAR



WARRIORS

Two gutsy engineers in Connecticut have caught the Nuclear Regulatory Commission at a dangerous game that it has played for years: routinely waiving safety rules to let plants keep costs down and stay online

By ERIC POOLEY



GEORGE BETANCOURT LOOKED UP FROM HIS DESK AS George Galatis burst into the office, a bundle of papers under his arm. On that morning in March 1992, the two men—both senior engineers at Northeast Utilities, which operates five nuclear plants in New England—were colleagues but not yet friends. Apart from their jobs and first names, they seemed to have little in common. Betancourt, 45, was extravagantly rebellious—beard, biker boots, ponytail sneaking out the back of his baseball cap—while Galatis, 42, was square-jawed and devout: Mr. Smith Goes Nuclear. But Galatis respected Betancourt's expertise and knew he could count on him for straight answers.

On this day, Galatis wanted to know about a routine refueling operation at the Millstone Unit 1 nuclear plant in Waterford, Connecticut. Every 18 months the reactor is shut down so the fuel rods that make up its core can be replaced; the old rods, radioactive and 250°F hot, are moved into a 40-ft.-deep body of water called the spent-fuel pool, where they are placed in racks alongside thousands of other, older rods. Because the Federal Government has never created a storage site for high-level radioactive waste, fuel pools in nuclear plants across the country have become de facto nuclear dumps—with many filled nearly to capacity. The pools weren't designed for this purpose, and risk is involved: the rods must be submerged at all times. A cooling system must dissipate the intense heat they give off. If the system failed, the pool could boil, turning the plant into a lethal sauna filled with clouds of radioactive steam. And if earthquake, human error or mechanical failure drained the pool, the result could be catastrophic: a meltdown of multiple cores taking place outside the reactor containment, releasing massive amounts of radiation and rendering hundreds of square miles uninhabitable.

To minimize the risk, federal guidelines require that some older plants like Millstone, without state-of-the-art cooling systems, move only one-third of the rods into the pool under normal conditions. But Galatis realized that Millstone was routinely performing "full-core offloads," dumping all the hot fuel into the pool. His question for Betancourt was, "How long has this been going on?"

BROTHERS-IN-ARMS: George Galatis, right, and George Betancourt outside the Millstone nuclear power plant

Betancourt thought for a minute. "We've been moving full cores since before I got here," he said, "since the early '70s."

"But it's an emergency procedure."

"I know," Betancourt said. "And we do it all the time." What's more, Millstone 1 was ignoring the mandated 250-hr. cool-down period before a full off-load, sometimes moving the fuel just 65 hrs. after shutdown, a violation that had melted the boots of a worker on the job. By sidestepping the safety requirements, Millstone saved about two weeks of downtime for each refueling—during which Northeast Utilities has to pay \$500,000 a day for replacement power.

Galatis then flipped through a safety report in which Northeast was required to demonstrate to the Nuclear Regulatory Commission that the plant's network of cooling systems would function even if the most important one failed. Instead, the company had analyzed the loss of a far less critical system. The report was worthless, the NRC hadn't noticed, and the consequences could be dire. If Millstone lost its primary cooling system while the full core was in the pool, Galatis told Betancourt, the backup systems might not handle the heat. "The pool could boil," he said. "We'd better report this to the NRC now."

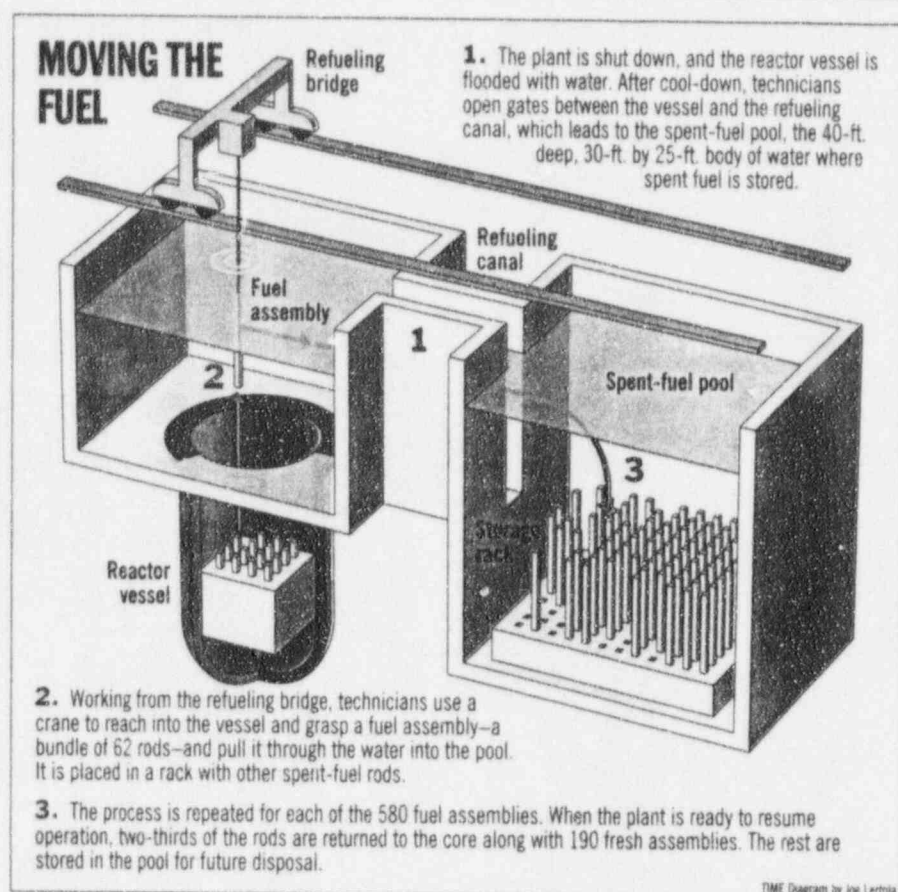
Betancourt saw that Galatis was right. "But you do that," he said, "and you're dogmeat."

Galatis knew what he meant. Once a leading nuclear utility, Northeast had earned a reputation as a rogue—cutting corners and, according to critics, harassing and firing employees who raised safety concerns. But if Galatis wanted to take on the issue, Betancourt told him, "I'll back you."

So began a three-year battle in which

▲▲ If Millstone lost its primary cooling system, Galatis told Betancourt, "the pool could boil. We'd better report this to the NRC." "Do that," Betancourt said, "and you're dogmeat."

Galatis tried to fix what he considered an obvious safety problem at Millstone 1. For 18 months his supervisors denied the problem existed and refused to report it to the NRC, the federal agency charged with ensuring the safety of America's 110 commercial reactors. Northeast brought in outside consultants to prove Galatis wrong, but they ended up agreeing with him. Finally, he took the case to the NRC himself, only to discover that officials there had known about the procedure for a decade without



moving to stop it. The NRC says the practice is common, and safe—if a plant's cooling system is designed to handle the heat load. But Millstone's wasn't. And when Galatis learned that plants in Delaware, Nebraska and New Jersey had similar fuel-pool troubles, he realized the NRC was sitting on a nationwide problem.

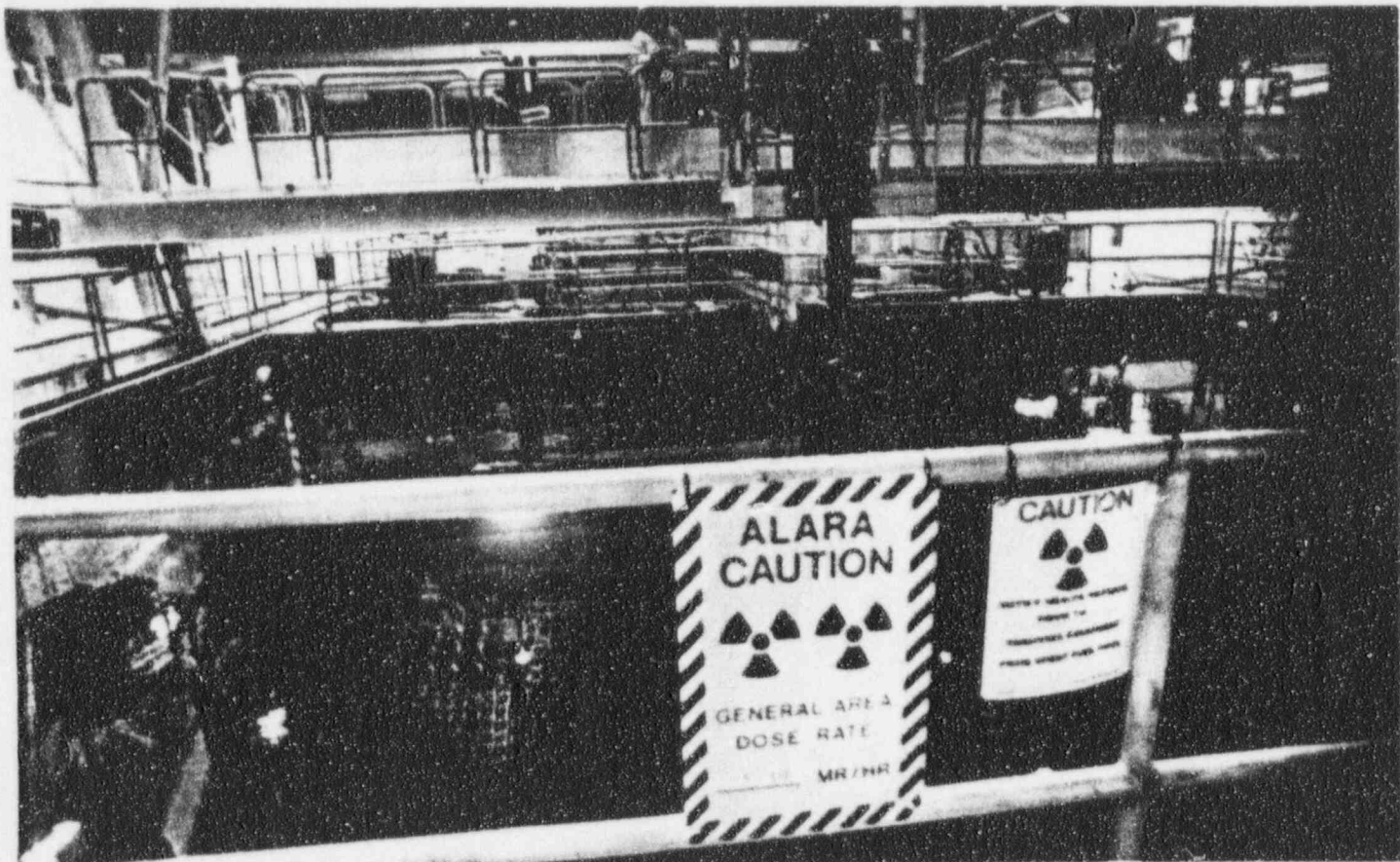
Ten years after the disastrous uncon-

blind eye, the question arises, How safe are America's nuclear plants?

THOUGH THE NRC'S MISSION STATEMENT promises full accountability—"nuclear regulation is the public's business," it says—the agency's top officials at first refused to be interviewed by TIME. After repeated requests, Chairwoman Shirley Ann Jackson, a physics professor who was appointed by President Clinton last summer, finally agreed to talk. But the veteran official in charge of the agency's day-to-day operations, executive director James M. Taylor, would provide only written answers to TIME's faxed questions.

"The responsibility for safety rests with the industry," Jackson told TIME. "Like any other regulatory body, the NRC is essentially an auditing agency." Jackson argued that her agency is tough—"When we catch problems, it never makes the papers"—but added that with 3,000 employees and just four inspectors for every three plants, "we have to focus on the issues with the greatest safety significance. We can miss things."

In fact, Millstone is merely the latest in a long string of cases in which the NRC bungled its mandate and overlooked serious safety problems until whistle blowers came forward (see box). The NRC's relationship with the industry has been suspect since



1974, when the agency rose from the ashes of the old Atomic Energy Commission, whose mandate was to promote nuclear power. The industry vetoes commission nominees it deems too hostile (two of five NRC seats are vacant), and agency officials enjoy a revolving door to good jobs at nuclear companies such as Northeast. "The fox is guarding the henhouse," says Delaware Senator Joseph Biden, who is pushing legislation to create an independent nuclear safety board outside the NRC. The Democrat, who is also calling for a federal investigation of NRC effectiveness, believes the agency "has failed the public."

It all comes back to money. "When a safety issue is too expensive for the industry, the NRC pencils it away," says Stephen Comley, executive director of a whistleblower support group called We the People, which has brought many agency failures to light. "If the NRC enforced all its rules, some of the plants we've studied couldn't compete economically."

In a rare point of agreement with activists, the nuclear industry also says regulations threaten to drive some plants out of business, but it argues that many NRC rules boost costs without enhancing safety. "The regulatory system hasn't kept pace with advances in technology," says Steve Unglesbee, a spokesman for the Nuclear Energy

Institute, the industry's p.r. unit. "Industry-wide, our safety record is improving. But NRC creates so many layers of regulation that every plant is virtually assured of being in noncompliance with something."

The NRC suggested as much in a 1985 agency directive on "enforcement discretion," which allowed the agency to set aside hundreds of its own safety regulations. Since 1990, Millstone has received 15 such waivers—more than any other nuclear station. In November, Jackson scaled back the policy, but she says this never endangered public safety. Others disagree.

"Discretionary enforcement was out of hand," says NRC acting Inspector General Leo Norton, who investigates agency wrongdoing but has no power to punish. "We shouldn't have regulations on the books and then ignore or wink at them."

Yet the tensions between cost and safety can only increase as deregulation of the nation's utilities ushers in a new era of rate-slashing competition. In some states, consumers will soon choose their electric company the way they now choose a long-distance telephone carrier. Companies with nuclear plants are at a disadvantage because nuclear-generated electricity can cost twice as much as fossil-generated power. No new plants have been ordered in 18 years, and a dozen

DE FACTO DUMP: Millstone Unit 1's spent-fuel pool now holds 3,000 used assemblies have been mothballed in the past decade.

For now, however, nuclear power provides 20% of the electricity consumed in the U.S.; New England depends on nuclear plants for more than half its supply. Long-term, says Northeast senior vice president Donald Miller, Millstone and her sisters will survive only "if we start running them like a business [and] stop throwing money at issues." New England's largest power company, with \$6.5 billion in assets and \$3.7 billion in revenues last year, Northeast is slashing its nuclear work force of 3,000 employees by one-third over the next five years. Company CEO Bernard Fox says the move will not undermine safety.

GEORGE GALATIS WENT TO WORK AT NORTHEAST UTILITIES IN JUNE 1982 with a degree from Rensselaer Polytechnic Institute and experience with a top manufacturer of nuclear components. At Northeast, he started in the division that oversees the utility's 15 fossil-fuel plants, then moved to the nuclear group, specializing in performance and reliability. Eric DeBarba, Northeast's vice president of technical services, describes him as a solid engineer. "Nobody here ever questioned his honesty or motives," DeBarba says.

Galatis tells it differently. In March 1992 he began working on Millstone 1, one of three nuclear plants perched on a neck of land that juts into Long Island Sound from the shore of southeastern Connecticut. He was checking specifications for a replacement part for a heat exchanger in the spent-fuel cooling system. To order the proper part, he needed to know the heat load. So he pulled a safety report that should contain the relevant data.

But they weren't there.

"The report didn't contain the safety analysis for what we were doing," says Galatis. "No heat-load calculations." It was then he realized the plant had been routinely operating "beyond design basis," putting 23 million BTUs into a pool analyzed for 8 million, which is, he says, "a bit like running your car at 5,000 r.p.m."

Galatis raised the issue with members of Northeast's division of nuclear licensing. "They tried to convince me they had it analyzed," he says. He asked them to produce the documents, and they could not. Galatis sensed trouble when, in later talks, "they began denying that the first discussions had taken place." In June 1992 he spelled out the problem in a memo, calling the fuel pool a license violation and an "un-reviewed safety question"—NRC lingo for a major regulatory headache—and adding other concerns he had found, such as the fact that some of the pool's cooling pipes weren't designed to withstand an earthquake, as they were required to do. Northeast sat on the memo for three months, until Galatis filed an internal notice-of-violation form, and Betancourt, a leader in the spent-fuel field for years, wrote a memo backing him up.

"When I started in the industry, 20 years ago," Betancourt says, "spent fuel was considered the ass end of the fuel cycle. No one wanted to touch it. Everyone wanted to be on the sexy side, inside the reactor vessel, where the action and danger were. No one noticed fuel pools until we started running out of room in them."

In 1982 Congress mandated that the Department of Energy begin to accept nuclear waste from commercial reactors in 1998. Consumers started paying into a federal fund meant to finance a storage site. Though the Energy Department has collected \$8.3 billion, no facility has been completed; in a case of NIMBY writ large, no state wants such a site in its backyard. As the nation's stockpile of spent fuel reached 30,000 tons, activists seized the issue as a way to hobble the industry, and the Ener-



SEE NO EVIL: Northeast's DeBarba says he knows nothing about Galatis' being harassed for raising safety issues

gy Department announced that a permanent facility planned for Yucca Mountain, Nevada, wouldn't be ready until 2010; Energy Secretary Hazel O'Leary now puts its chances of opening at no better than fifty-fifty. Bills to create temporary sites are stalled in both houses of Congress.

"Slowly, we woke up to this problem," says Betancourt. The NRC relaxed standards and granted license amendments that allowed plants to "rerack" their rods in ever more tightly packed pools. Sandwiched between the rods is a neutron-absorbing material called Boraflex that helps keep them from "going critical." After fuel pools across the country were filled in this way, the industry discovered that radiation causes Boraflex to shrink and crack. The NRC is studying the problem, but at times its officials haven't bothered to analyze a pool's cooling capacity before granting a reracking amendment. "It didn't receive the attention that more obvious safety concerns got," says Inspector General Norton.

Then, in late 1992, David Lochbaum and Don Prevatte, consultants working at Pennsylvania Power & Light's Susquehanna plant, began to analyze deficiencies in spent-fuel cooling systems. They realized that a problem had been sneaking up on the industry: half a dozen serious accidents at different plants had caused some water to drain from the pools. In the worst of them, at Northeast's Haddam Neck plant in 1984, a seal failure caused 200,000 gal. to

drain in just 20 min. from a water channel next to the fuel pool. If the gate between the channel and the pool had been open, the pool could have drained, exposing the rods and causing a meltdown. Says Lochbaum: "It was a near miss."

The NRC insists that the chance of such an accident is infinitesimal. But the agency's risk-assessment methods have been called overly optimistic by activists, engineers and at least one NRC commissioner. The agency's analysis for a fuel-pool drainage accident assumes that at most one-third of a core is in the pool, even though plants across the country routinely move full cores into pools crowded with older cores. If the NRC based its calculations on that scenario, says Lochbaum, "it would exceed the radiation-dose limits set by Congress and scare people to death. But the NRC won't do it." The NRC's Taylor told TIME that the agency analyzes dose rates at the time a plant opens—when its pool is empty. The law, he said, "does not contain a provision for rereview."

Lochbaum and Prevatte reported Susquehanna to the NRC and suggested improvements to its cooling system. The NRC, Lochbaum says, didn't read the full report. He and Prevatte called Congress members, pushed for a public hearing and presented their concerns to NRC staff. Conceding that Lochbaum and Prevatte "had some valid points," the agency launched a task force and in 1993 issued an informational notice to the 35 U.S. reactors that share Susquehanna's design, alerting them to the problem but requiring no action. One of the plants was Millstone 1.

IN 1992, GALATIS DIDN'T KNOW ABOUT Lochbaum's struggle to get fuel-pool problems taken seriously. He did know he would face resistance from Northeast, where the bonus system is set up to reward employees who don't raise safety issues that incur costs and those who compromise productivity see their bonuses reduced. (Northeast says it has a second set of bonuses to reward those who raise safety issues. Galatis never got one.)

"Management tells you to come forward with problems," says Millstone engineer Al Cizek, "but actions speak louder than words." A Northeast official has been quoted in an NRC report saying the company didn't have to resolve a safety problem because he could "blow it by" the regulators. An NRC study says the number of safety and harassment allegations filed by workers at Northeast is three times the in-

dustry average. A disturbing internal Millstone report, presented to CEO Fox in 1991 and obtained by TIME, warns of a "cultural problem" typified by chronic failure to follow procedures, hardware problems that were not resolved or were forgotten, and a management tolerant of "willful [regulatory] noncompliance without justification." The report, written by director of engineering Mario Bonaca, changed nothing. "We've been working at this," says Fox, "but making fundamental change in a complex, technical environment is really hard."

A 1996 Northeast internal document reports that 38% of employees "do not trust their management enough to willingly raise concerns [because of] a 'shoot the messenger' attitude" at the company. In recent years, two dozen Millstone employees have claimed they were fired or demoted for raising safety concerns; in two cases, the NRC fined Northeast. In one, Paul Blanch, who had only recently been named engineer of the year by a leading industry journal, was subjected to company-wide harassment after he discovered that some of Millstone Unit 3's safety instrumentation didn't work properly.

Galatis had watched that case unfold. "George knew what he was getting into," says Blanch. "He knew Northeast would come after him. He knew the NRC wouldn't protect him. And he did it anyway."

IN JANUARY 1993, GALATIS PUSHED FOR A meeting with Richard Kacich, Northeast's director of nuclear licensing. Galatis outlined the pool's problems and asked for a consultant, Holtec International, to be brought in. Holtec agreed with Galatis that the pool was an unanalyzed safety question; later the consultant warned that a loss of primary cooling could result in the pool's heating up to 216°F—a nice slow boil.


Galatis sent a memo to DeBarba, then vice president of nuclear engineering, in May 1993. Galatis was threatening to go to the NRC, so DeBarba created a task force to address "George's issues," as they were becoming known. The aim seems to have been to appease Galatis and keep him from going public. DeBarba says the calculations that Holtec and Galatis used were overly conservative and that experience told him there was no problem. The pool hadn't boiled, so it wouldn't boil. If a problem ever developed, there would be plenty of time to correct it before it reached the crisis stage. "We live and work here. Why would we want an unsafe plant? We had internal debate on this topic," DeBarba

told TIME. "Legitimate professional differences of opinion." In 1977, he says, the NRC stated, "We could make the choice [of a full-core off-load] if it's 'necessary or desirable for operational considerations.' But that does not mean that what George raised was not an issue. We have rules on this, and we want to get it right."

By October 1993, Galatis was writing to the chief of Northeast's nuclear group,

questioning Kacich about the apparent violations. In two March 1994 memos to Kacich, Partlow backed Galatis, scolded the utility for taking so long to respond to him and suggested that they should reward Galatis "for his willingness to work within the NU system ... Let him know that his concern for safety ... is appreciated."

DeBarba and Kacich created another task force but did not modify the cooling

 **"We haven't always been on top of things," says the NRC's Jackson. "The ball got dropped. Here's what I'm saying now: The ball will not get dropped again."**

John Opeka, and to Fox, who was then company president. Galatis mentioned the criminal penalties for "intentional misconduct" in dealings with the NRC. Opeka objected to Galatis' abrasive tone but hired another consulting firm, which also agreed with Galatis. Northeast moved on to yet another consultant, a retired NRC official named Jim Partlow.

In December, during a four-hour interview that Galatis calls his "rape case"—because the prosecutor, he says, put the victim on trial—Partlow grilled Galatis about his "agenda" and "motives." After Galatis showed him the technical reports, Partlow changed his mind about Galatis and began

system. Kacich began having conversations with Jim Andersen, the NRC's project manager for Millstone 1, about Galatis' concerns and how to get through the spring 1994 off-load. Andersen, who works at NRC headquarters in Washington, has told the inspector general that he knew all along Millstone was off-loading its full core but didn't know until June 1993 that it was a problem. Even then he did not inform his superiors. In a bow to Galatis, Millstone modified its off-load procedure, moving all the rods but doing so in stages. Before the off-load, Northeast formally reported to Andersen what he'd known for months: that Millstone might have been operating

outside its design basis, a condition that must be reported within 30 days.

During the spring outage, a valve was accidentally left open, spilling 12,000 gal. of reactor-coolant water—a blunder that further shook Galatis' faith. He began to see problems almost everywhere he looked and proposed the creation of a global-issues task force to find out whether Millstone was safe enough to go back online. His bosses agreed. But when the head of the task force left for a golf vacation a few weeks before the plant was scheduled to start up, Galatis says, he knew it wasn't a serious effort. So he made a call to Ernest Hadley, the lawyer who had defended whistle blower Blanch against Northeast two years before.

AN EMPLOYMENT AND WRONGFUL-termination lawyer, Hadley has made a career of representing whistle blowers, many of them from Millstone. For 10 years he has also worked with Stephen Comley and We the People. Comley, a Massachu-



ENFORCER: NRC Chairwoman Jackson is trying to prove her commitment to safety—and reform an inert bureaucracy

setts nursing-home operator, is a classic New England character, solid and brusque. He founded We the People in 1986 when he realized the evacuation plans for Seabrook Station, a plant 12 miles from his nursing home, included doses of iodine for those too old and frail to evacuate.

"Some of us were expendable," says Comley. "That got me going." For years he was known for publicity stunts—hiring planes to trail banners above the U.S. Capitol—and emotional outbursts at the press conferences of politicians. The NRC barred him from its public meetings until a judge ordered the ban lifted. But Comley's game evolved: instead of demanding that plants be shut down, he began insisting they be run safely. He teamed up with the sharp-witted Hadley to aid and abet whistle blowers and sank his life savings into We the People before taking a dime in donations. Comley, says the NRC's Norton, "has been useful in bringing important issues to our attention. Steve can be a very intense guy. I don't think it's good for his health. But people who seem—not fanatical, but overly intense—help democracy work."

IN APRIL 1994, TWO YEARS AFTER HE DISCOVERED the problems with Millstone's cooling system, Galatis reported the matter to the NRC. He spoke to a "senior allegations coordinator," waited months, then refiled his charges in a letter describing 16 problems, including the cooling system, the pipes that couldn't withstand seismic shock, the corporate culture. "At Northeast, people are the biggest safety problem," Galatis says. "Not the guys in the engine room. The guys who drive the boat."

Galatis told DeBarba and Kacich that he was going to the NRC. He continued to experience what he calls "subtle forms of harassment, retaliation and intimidation." His performance evaluation was downgraded, his personnel file forwarded to Northeast's lawyers. DeBarba "offered" to move him out of the nuclear group. He would walk into a meeting, and the room would go suddenly silent. DeBarba says he is unaware of any such harassment.

With missionary zeal, Galatis continued to forward allegations to the NRC. Yet four months passed before Galatis finally heard from Donald Driskill, an agent with the NRC's Office of Investigations (the second watchdog unit inside the NRC, this one tracks wrongdoing by utilities). Galatis felt that Driskill was too relaxed about the case. Driskill talked to Northeast about Galatis'



COACHING STAFF: Comley, left, and Hadley, right, with Galatis at a public meeting last October, lent the engineer crucial support

charges—a breach of confidentiality that the NRC calls "inadvertent." When Hadley complained to him about Northeast's alleged harassment of Galatis, Driskill suggested he talk to Northeast's lawyer: "He's a really nice guy."

While playing detective—sniffing through file drawers and computer directories—Galatis found items that he felt suggested collusion between the utility and its regulator. Safety reports made it clear that both on-site inspectors and officials from the NRC's Office of Nuclear Reactor Regulation had known about the full-core off-loads

since at least 1987 but had never done anything about them. Now, to clear the way for the fall 1995 off-load, NRC officials were apparently offering Northeast what Galatis calls "quiet coaching." One sign of this was a draft version of an NRC inspection report about the spent-fuel pool that had been E-mailed from the NRC to Kacich's licensing department. "What was that doing in Northeast's files?" asks Inspector General Norton.

On June 10, 1995, Jim Andersen visited the site to discuss Galatis' concerns with Kacich's staff. Andersen wouldn't meet with Galatis but huddled with Kacich's team, trying to decide how to bring Millstone's habits into compliance with NRC regulations, either by requesting a license amendment—a cumbersome process that requires NRC review and public comment—or by filing an internal form updating the plant's safety reports. This was the easier path, but it could be used only if the issue didn't constitute an unreviewed safety question. Andersen told DeBarba and Kacich that the license amendment "is the cleaner way to go," but they weren't sure there was enough time to get an amendment approved before the next off-load, scheduled for October 1995.

On July 10, Betancourt met with Ken Jenison, an inspector from the NRC's Re-

NEAR MISSES The Nuclear Regulatory Commission's Office of the Inspector General—a watchdog that can investigate but not punish—has looked into an array of cases in which safety problems were ignored by NRC staff. Some highlights:

■ After a 1975 fire knocked out equipment at the Browns Ferry plant in Alabama, the NRC approved a material called Thermo-Lag as a "fire barrier" to protect electrical systems. Between 1982 and 1991, however, the NRC ignored seven complaints about Thermo-Lag; when an engineer testified that fire caused it to melt and give off lethal gases, the NRC closed the case without action. After more complaints and an inspector general's investigation, the NRC "reassessed." Now, it says, "corrective action is ongoing."

■ In 1980 workers at Watts Bar 1, a plant then under construction by the Tennessee Valley Authority, flooded the NRC with some 6,000 allegations of shoddy workmanship and safety lapses—enough to halt construction for five years. The NRC breached confidentiality and identified whistle blowers such as electrical supervisor Ann Harris to the TVA; several were fired. After 23 years and \$7 billion, Watts Bar 1 was completed last fall. Though workers say the TVA has abandoned thorough safety inspections in favor of a "random sampling" program, the NRC in February granted an operating license to Watts Bar, the last U.S. nuclear plant scheduled for start-up.

■ In the early 1980s, when Northeast Utilities' Seabrook Station in New Hampshire was under construction, Joseph Wampler warned the NRC that many welds were faulty. His complaints went unanswered, and he was eventually fired. Blacklisted, he says, Wampler moved to California and revived his career. But in 1991 the NRC sent a letter summarizing Wampler's allegations—and providing his full name and new address—to several dozen

gion 1 office, and gave testimony in support of Galatis' safety allegations. Less than a week later, Betancourt was called to the office of a good-natured human-resources officer named Janice Roncaioli. She complained that he wasn't a "team player," Betancourt says, and ran through the company's termination policies. Roncaioli called Betancourt's account of the meeting "slanted" but would not comment further, citing employee-confidentiality rules.

In a July 14 meeting, Jenison, one official who wasn't going to stand for any regulatory sleight-of-hand, told DeBarba and Kacich that if Northeast tried to resolve its licensing problems through internal paperwork alone, he would oppose it. Northeast had to get a license amendment approved before it could off-load another full core, and time was running out. DeBarba and Kacich called on Galatis and Betancourt to help them write the amendment request. The plan included, for the first time, the cooling-system improvements Galatis had been demanding for three years. It was a kind of victory, but he felt disgusted. "The organizational ethics were appalling," he says. "There's no reason I should have had to hire a lawyer and spend years taking care of something this simple."

So Galatis helped Kacich with the amendment request, which was filed July 28. Then he and Hadley drew up another document: a petition that asked the NRC to deny Northeast's amendment request and suspend Millstone's license for 60 days. The petition, filed on behalf of Galatis and

We the People, charged that Northeast had "knowingly, willingly, and flagrantly" violated Millstone 1's license for 20 years, that it had made "material false statements" to the NRC and that it would, if not punished, continue to operate unsafely.

On Aug. 1, Betancourt was called into DeBarba's office; Roncaioli was present, and DeBarba told Betancourt he was being reassigned. "We want to help you, George," Betancourt recalls DeBarba saying, "but you've got to start thinking 'company.'" It was all very vague and, Betancourt thought, very intimidating. On Aug. 3—the day Betancourt was scheduled

AFTER GALATIS FILED HIS PETITION, ON AUG. 21, he found himself in many of New England's newspapers. As citizens' groups called meetings, Northeast and the NRC assured everyone that the full-core off-load was a common practice that enhanced safety for maintenance workers inside the empty reactor vessel. "We've been aware of how they off-loaded the full core," NRC spokeswoman Diane Screnci told one paper. "We could have stopped them earlier."

At a citizens' group meeting, Galatis met a mechanic named Pete Reynolds, who had left Millstone in a labor dispute two years before. Reynolds shared some hair-

Galatis charged that his bosses had "knowingly, willingly, and flagrantly" violated Millstone's license for 20 years. What scared him most: the NRC had never noticed.

to meet with the Office of Investigations—Roncaioli called him to her office again. According to Betancourt, she said she wanted to "reaffirm the meaning" of the DeBarba meeting. Betancourt's wife and children began to be worried that he would be fired. "Why don't you just do what they want you to?" his eldest girl asked. Betancourt didn't know quite how to answer. "Your own daughter telling you to roll over," he says.

raising stories about his days off-loading fuel. He told Galatis—and has since repeated the account to *TIME*—that he saw work crews racing to see who could move fuel rods the fastest. The competition, he said, tripped radiation alarms and overheated the fuel pool. Reynolds' job was to remove the big bolts that hold the reactor head in place. Sometimes, he said, he was told to remove them so soon after shutdown that the heat melted his protective plastic booties.

Galatis knew that if such things had happened, they would be reflected in operator's logs filed in Northeast's document room. So, on Oct. 6, he appeared in the room and asked for the appropriate rolls of microfiche. The logs backed up what Reynolds had said: Millstone had moved fuel as soon as 65 hrs. after shutdown—a quarter of the required time. The logs noted the sounding of alarms. Galatis wondered where the resident inspector had been.

The deadline came for Millstone's off-load, but the amendment still had not been granted. Connecticut's Senator Chris Dodd, Representative Sam Gejdenson and a host of local officials were asking about the plant's safety, and Millstone scheduled a public meeting for late October. Senior vice president Don Miller sent a memo to his employees warning them that "experienced antinuclear activists" had "the intention of shutting the station down and eliminating 2,500 jobs." The memo stirred up some of Galatis' colleagues. "You're taking food out of my girl's mouth," one of them told him.

DeBarba assembled a task force to assess what had to be done to get the pool ready for the overdue off-load, but he kept

nuclear companies. His career was destroyed a second time; he now works as a carpenter. The NRC fined Northeast \$100,000 for problems with the welds.

■ In 1990 Northeast engineer Paul Blanch discovered that the instruments that measure the coolant level inside the reactor at Millstone 3 were failing. Blanch was forced out, and the problem went uncorrected. In 1993 the NRC's William Russell told the inspector general that the agency had exercised "enforcement discretion," a policy that allows it to waive regulations. Later Russell said the remark had been taken out of context.

■ Last December a worker at the Maine Yankee plant in Bath charged that management had deliberately falsified computer calculations to avoid disclosing that the plant's cooling systems were inadequate. The NRC didn't discover this, the Union of Concerned Scientists told reporters, because it didn't notice that Maine Yankee had failed to submit the calculations for review—though they were due in January 1990.

■ In 1988 a technician at the Nine Mile Point plant near Oswego, New York, called the NRC with allegations of drug use and safety violations at the plant. The NRC executive director at the time, Victor Stello Jr., took a personal interest in the matter, but his chief aim seemed to be building a case against Roger Fortuna, the deputy director of the NRC's Office of Investigation, for leaking secrets to the watchdog group We the People. The NRC demanded that We the People head Steve Comley turn over tapes he had allegedly made of conversations with Fortuna. When Comley refused, he was ruled in contempt and fined \$350,000 (he still has not paid). The charges against Fortuna were found to be without merit, and when the case came to light—during hearings to confirm Stello as Assistant Secretary of Energy—Stello withdrew his name. "The tension between enforcement and appeasement," a ranking NRC official says, "tugs at this agency every day."

Galatis and Betancourt off the team. The task force came up with six serious problems, most already raised by Galatis. Scrambling to fix the pool in a few weeks, DeBarba hired extra people. The plant shut down, anticipating permission to move fuel.

Galatis and Hadley had been waiting two months for a reply to their petition to deny Northeast's amendment. Finally, on Oct. 26, a letter from William Russell, director of the NRC's Office of Nuclear Reactor Regulation, informed them that their petition was "outside of the scope" of the applicable regulatory subchapter. Two weeks later, the NRC granted Northeast's amendment. Millstone started moving fuel the next morning.

Because of Galatis, the plant is still shut down. "What's especially galling," says

the NRC was considering penalties. In an extraordinary move, Russell demanded a complete review of every system at Millstone 1, with the results "submitted under oath," to prove that every part of the plant is safe—the global examination Galatis asked for two years ago. The results, Russell wrote, "will be used to decide whether or not the license of Millstone Unit 1 should be suspended, modified or revoked."

Now the pressure is on NRC Chairwoman Jackson to prove her commitment to nuclear safety—and her ability to reform an inert bureaucracy. "I will not make a sweeping indictment of NRC staff," Jackson, a straight-talking physicist who in July 1995 became both the first female and the first African American to run the NRC, told

FOR GALATIS, THE ENDGAME SHOULD HAVE been sweet. On Dec. 20, a Millstone technical manager fired off a frank piece of E-mail warning his colleagues that "the acceptance criteria are changing. Being outside the proper regulatory framework, even if technically justifiable, will be met with resistance by the NRC. Expect no regulatory relief." DeBarba put 100 engineers on a global evaluation of the plant, and they turned up more than 5,000 "items" to be addressed before the plant could go back online. The company announced a reorganization of its nuclear division in which DeBarba and Miller were both promoted. Miller, who told TIME that "complacency" was to blame for the utility's troubles, was put in charge of safety at Northeast's five nuclear plants. On Jan. 29, the NRC, citing chronic safety concerns, employee harassment "and historic emphasis on cost savings vs. performance," enshrined all three Millstone plants in the agency's hall of shame: the high-scrutiny "watch list" of troublesome reactors. Northeast announced that Millstone would stay down at least through June, at a cost of \$75 million. And Standard & Poor's downgraded Northeast's debt rating from stable to negative.

"A hell of an impact," says Betancourt, but "I'm going to lose my job."

"If I had it to do over again," says Galatis, "I wouldn't." He believes his nuclear career is over. (Though still employed by Northeast, he knows that whistle blowers are routinely shut out by the industry.) He's thinking about entering divinity school.

In January, Northeast laid off 100 employees. To qualify for their severance money, the workers had to sign elaborate release forms pledging not to sue the utility for harassment. Four engineers say they were fired in retaliation for their testimony to the NRC four years ago on behalf of whistle blower Blanch. The company denies any connection between the layoffs and Blanch's case. That makes Blanch chuckle. "The two Georges had better watch their backs," he says. "Up at Northeast, they've got long memories."

In the end, Galatis believes, the NRC's recent flurry of activity is little more than window dressing. "If they wanted to enforce the law," he says, "they could have acted when it counted—before granting the license amendment. Whatever wrist slap they serve up now is beside the point."

"I believe in nuclear power," he says, "but after seeing the NRC in action, I'm convinced a serious accident is not just likely but inevitable. This is a dangerous road. They're asleep at the wheel. And I'm road-kill."

Northeast Utilities assured everyone that Millstone was safe. Now the plant is on the NRC's "watch list" and will remain shut down through June—at a cost of \$75 million.

Hadley, "is that the NRC ignored my client and denied his motion, then validated his concerns after the fact." In late December, Inspector General Norton released his preliminary report. He found that Northeast had conducted improper full-core offloads for 20 years. Both the NRC's on-site inspectors and headquarters staff, the report said, "were aware" of the practice but somehow "did not realize" that this was a violation. In other words, the NRC's double-barreled oversight system shot blanks from both barrels. Norton blamed bad training and found no evidence of a conspiracy between Northeast and the NRC to violate the license. He is still investigating possible collusion by the NRC after Galatis came forward. What troubled him most, Norton told TIME, is that agency officials all the way up to Russell knew about the offloads and saw nothing wrong with them. "The agency completely failed," says Norton. "We did shoddy work. And we're concerned that similar lapses might be occurring at other plants around the country."

In a second investigation, the Office of Investigations is looking into Northeast's license violations and the alleged harassment of Galatis and Betancourt. The intense public scrutiny their case has received will, Galatis says, "make it harder for them to sweep this one under the rug."

On Dec. 12, Russell sent a letter informing Northeast that because "certain of your activities may have been conducted in violation of license requirements,"

TIME. "Does that mean everybody does things perfectly? Obviously not. We haven't always been on top of things. The ball got dropped. Here's what I'm saying now: The ball will not get dropped again."

In response to the problems Galatis exposed, Jackson launched a series of policies designed to improve training, accountability and vigilance among inspectors and NRC staff. She ordered the agency's second whistle-blower study in two years and a nationwide review of all 110 nuclear plants, to find out how many have been moving fuel in violation of NRC standards. The results will be in by April, along with a menu of fuel-pool safety recommendations. (By using a technique called dry-cask storage, utilities could empty their pools and warehouse rods in airtight concrete containers, reducing risk. In the past, the NRC has ruled that the process isn't cost effective.)

Jackson still refuses to meet with Galatis or even take his phone call. "Mr. Galatis is part of an adjudicatory process," she explains. But in a letter turning down Stephen Comley's request that she meet with him and Galatis, Jackson wrote, "The avenues you have been using to raise issues are the most effective and efficient ways. I see no additional benefit to the meeting."

Asked by TIME if she considered three years and two wrecked careers "the most efficient" way to raise the fuel-pool issue, Jackson offered a thin smile. "I'm changing the process," she said. "When all is said and done, then Mr. Galatis and I can sit and talk."

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Secretary
U.S. Nuclear Regulatory Commission
Docketing and Service Branch
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Office of Commission Appellate Adjudication
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Washington, DC 20555

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

Administrative Judge
Charles Bechhoefer, Chairman
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Administrative Judge
Peter S. Lam
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Administrative Judge
Jerry R. Kline
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Sherwin E. Turk, Esq.
Susan S. Chikadel, Esq.
Office of the General Counsel
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Mr. Randy A. Nordin
Manager - Legal Division
Georgia Tech
Atlanta, GA 30332-0420

Ms. Pamela Blockey O'Brien
D23 Golden Valley
Douglasville, GA 30134

Alfred L. Evans, Jr. Esq.
Senior Assistant Attorney General
40 Capitol Square NW
Room 232 State Judicial Building
Atlanta, GA 30334-1300