



# The Fiftieth Anniversary of Brookhaven National Laboratory: A Turbulent Time

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The fiftieth anniversary year of Brookhaven National Laboratory was momentous, but for reasons other than celebrating its scientific accomplishments. Legacy environmental contamination, community unrest, politics, and internal Department of Energy issues dominated the year. It was the early days of perhaps the most turbulent time in the lab's history. The consequences resulted in significant changes at the lab, but in addition they brought a change to contracts to manage the Department of Energy laboratories.

*Key words:* Brookhaven National Laboratory; Department of Energy; High Flux Beam Reactor; environmental activism.

## Introduction

The year 1997 was expected to be an exciting one at Brookhaven National Laboratory (BNL), one of the Department of Energy-owned laboratories. It was the fiftieth anniversary of its founding by the operating contractor Associated Universities, Incorporated (AUI). It was to be a year of celebration of many scientific achievements. But although there were some celebrations, they were diluted as the year turned into something quite different and the very existence of the lab was threatened. The year was dominated by environmental, community, and political issues. AUI acted too late, the new Secretary of Energy acted too early, BNL and the Department of Energy (DOE) made mistakes, politicians grandstanded, and media coverage enhanced public concern. Lab scientists learned that perception can overwhelm facts. It was a year of continual turmoil at the lab. As personal examples, in the course of a few months I was “fired” within minutes of my initial appointment to upper-level lab management (the contractor that appointed me was terminated the morning of my first day), was proposed as the lab director several times, and was appointed once—on an interim basis. This account is based largely on personal reminiscences of a period which encompasses the early part of what might be the most turbulent period in the lab's history. I

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begin with some background information which should help give context to the events to come.

## **Background**

Brookhaven National Laboratory (BNL) occupies a large 5,300-acre site on Long Island. Since its founding in 1947 on the site of a World War I and World War II army camp, the lab has produced some groundbreaking science, including seven Nobel Prizes, the development of L-Dopa to treat Parkinson's disease, and the generator for the most-used radioisotope in the world, Tc-99m.<sup>1</sup> But as 1997 dawned, the lab's legacy environmental issues and relationship with the community, which had waxed and waned over the years, came to dominate newspaper headlines and demand the full attention of lab administrators.

The community, of course, is not a monolithic body with a singular view. The tens of thousands of people who attended popular open houses and the school children who visited on field trips were generally excited about the lab and its science. Many others in the community either did not know what the lab did or were suspicious of its activities, with some motivated enough to organize and seek improvements in performance or demand explanations. However, the highest profile of the community groups, the most often quoted in the press, was composed of a relatively small number of anti-nuclear activists. Their claims, which often took liberties with facts, were expressed in colorful language and made them quotable.

The lab had reported sporadic off-site contamination events over the years (mostly chemical, but some radioactivity), which was a periodic issue of community concern. The lab had been named a Superfund site in 1989, one of twenty on Long Island, primarily because of chemical contamination—pesticides and cleaning agents—from previous disposal practices by the army and laboratory. In the early 1990s, DOE "Tiger Teams" had conducted aggressive reviews of environmental and safety issues at all DOE laboratories. Although the issue of safety was largely the responsibility of the contractor running the lab's operation, the relative roles of AUI and DOE in environmental areas was divided. AUI was responsible for identifying issues that needed addressing either by themselves or DOE and DOE was responsible for providing funds for decommissioning larger legacy facilities. Most lab employees probably had little knowledge of the extent of the legacy environmental issues at BNL.

A widespread 1992 investigation of suspected legacy contamination included a search through historical records and discussions with older employees to discover other unsuspected issues. The large site had changed its look over the years as army barracks were replaced with new buildings, so old records and memories of employees were crucial in trying to find other potential legacy problems. Some of those practices included disposal in an on-site landfill, an old sewage treatment plant that discharged into the headwaters of the Peconic River,<sup>2</sup> leaks from

underground pipes, and releases of cleaning agents into the ground. The cleanup of the contamination was to be concluded by 2006, although there were likely some unknowns yet to be addressed. To keep the community informed, newsletters of activities were sent out quarterly. In addition, the lab reached out to local communities in a number of meetings and, as a bridge to the community, established an on-site office for two community leaders, Jean Mannhaupt and Nanette Essel.

Of particular concern on Long Island is that drinking water is pulled from a deep underground sole-source aquifer and, as a result of a chemical, TCA, found at levels above drinking water standards in some off-site test wells and in four private wells, DOE in the early days of 1996 offered to pay for public water hookups for off-site residences south of the lab. Although this decision was understandable as an effort to build trust, it seemed to have the opposite effect, amplifying concern about the lab's environmental performance. DOE's willingness to pay for the hookups encouraged the perception that BNL was contaminating peoples' private wells, despite official statements to the contrary (Suffolk County Health Department stated the source of TCA contamination was an industrial park south of the lab). Residents naturally asked why DOE would offer water hookups if the wells were not contaminated.

Another subject of some community concern was that the laboratory operated two research reactors (3 MW and 40 MW), rather small compared to power reactors (about 800 MW), and Long Island had a group of energetic anti-nuclear activists who had mobilized to close the much larger \$6 billion Shoreham power reactor before it generated any electricity. One of the two active research reactors, the 40 MW High Flux Beam Reactor (HFBR), was prominent in the events to come, even though it was not operating at the time.<sup>3</sup> The lab also had a long-closed (thirty years), air-cooled graphite reactor, the Brookhaven Graphite Research Reactor or BGRR, that had been defueled, but had not been fully decommissioned due to lack of funding. It was due to be cleaned up as part of Superfund work by 2002, but in the meantime remained a source of possible radioactive contamination.

The Environmental Protection Agency (EPA) Superfund process is a formal one. Once issues are identified, there is a many step approval process that determines how to address them; actions at BNL required approval of the EPA, DOE, and New York Department of Environmental Commission. This deliberative process was occasionally a frustration to those who wanted more immediate action.

### **Community Unrest and the Political Tinderbox**

A clear sign of the community's mood was visible at a meeting at the lab on the evening of January 16, 1996, convened to discuss BNL-related contamination. About five hundred people packed Berkner auditorium. Our congressional

representative, Michael Forbes, sat in the front row with BNL director Nicholas Samios.

The meeting itself was raucous; a number of community members who had private wells were angry that the lab might be sending contaminants to their wells and wanted bottled water, or faster hookups, or more homes included. Some were upset that they might now have to pay for water usage if they were hooked up to public water. In addition, several activists made accusations about the lab causing high cancer rates and called for its closure. Two lab representatives, Sue Davis (associate director for environment, safety, and health) and Bill Gunther (manager of office of environmental remediation), tried to keep things on as even a keel as possible, but not very successfully. A presentation by a physician from the Suffolk County Department of Health Services trying to put contaminant levels in perspective was perceived as minimizing the issue and received poorly by the attendees. A meeting break was necessary to calm things down.

Criticism of BNL ramped up significantly during the remainder of 1996, much of it led by high-profile residents of the East End of Long Island (the Hamptons). In a number of meetings, several anti-nuclear activists leveled accusations about radiation releases from BNL reactors causing high cancer rates. Three activists who would continue to play a role during the coming years were Helen Caldicott, Jay Gould, and Bill Smith. Gould, a self-described epidemiologist, had published a recent book, *The Enemy Within*, about how low-level radiation contributed to various diseases, including Lyme disease and AIDS. A review in the *Health Physics Society Newsletter* stated that Gould, who had a degree in economics from Columbia, “has violated many of the principles of good science” and concluded that knowledgeable people should “point out the lack of any scientific foundation whatsoever for the claims that are made.”<sup>4</sup> Yet, the activists continued to cite him. Helen Caldicott was a dynamic speaker who often used dramatic, doomsday expressions in describing anything involving radiation, such as, “if they [reactors] melt down and the wind blows towards us we’re dead.”<sup>5</sup> Bill Smith, head of the Fish Unlimited organization, suggested radiation “might be the missing link to brown tide blooms, but acknowledged, “I am not a scientist.”<sup>6</sup>

The lab was dealing with both management and political uncertainties in 1996. The president of AUI, Robert Hughes, announced he would step down after sixteen years in office and a search commenced. The long-serving lab director, Nicholas Samios, also planned to step down, but wanted to wait for the new president before doing so.

The relationship between lab management and its congressional representatives was important since lab funding was primarily federal. The Republican senator Alfonse D’Amato, who had until that point supported both the lab and the director, was to be up for re-election in 1998 and several publications noted that he had the worst environmental voting record in the Senate. The local congressman Michael Forbes, a protégé of D’Amato’s, had a cool relationship with lab management.

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Finally, BNL is a Department of Energy laboratory and that agency was also changing leadership. Following his re-election in 1996, President Clinton replaced many of his cabinet secretaries. He nominated Federico Peña for Secretary of Energy. Peña had been Secretary of Transportation when ValueJet Airlines had a catastrophic accident in May 1996 for which his agency took much of the blame. He thus was very sensitive to safety. As mentioned above, safety in DOE labs had been an issue for some years and was now being stressed by Tara O'Toole, the DOE Head of Environment, Safety, and Health.

As 1997 dawned, the confluence of all these factors pointed to a major escalation of the existing unrest if an unexpected, significant triggering event happened—namely, an event that coupled the environment with a nuclear reactor.

### **The Leak**

On January 17, 1997, Samios sent a memo to lab employees reporting that levels of tritium (a radioactive form of hydrogen) above the drinking water standard had been discovered in groundwater near the High Flux Beam Reactor. The same day, Senator D'Amato and Representative Forbes issued a press release criticizing the lab and registering their displeasure that they had not been informed more than a day in advance. They called for an investigation of the lab by both EPA and DOE. This finding of tritium near a reactor produced, not unexpectedly, major stories in *Newsday* and the *New York Times*.<sup>7</sup> Although Superfund actions had been ongoing, this event stimulated coverage of both new environmental issues and current actions.

A DOE team was dispatched to BNL to conduct a comprehensive environmental review. Later that month, a meeting was held at the lab with DOE officials including Tara O'Toole, along with Senator D'Amato and Congressman Forbes, where DOE promised additional environmental remediation. This was one of many visits O'Toole would make to BNL over the next months.

Lab drinking water wells had been sampled for years and other monitoring wells had been installed around the lab site, but the interim report from the DOE committee was critical of planning for environmental remediation by both DOE and BNL.<sup>8</sup> They found that more groundwater monitoring, especially near the reactor, was not done because other known environmental issues were viewed as more urgent. Factors that led the lab to judge there had not been an urgent need for the wells near the HFBR included the fact that the spent fuel pool, eventually determined as the source of the leak, had various layers of leak protection and leakage tests had not shown leaks—tests that later were found to be inadequately precise. Another factor was a focus on the negligible possible health impact of a leak. The reactor was far from the lab boundary and the entire spent-fuel pool contained about thirty curies of tritium, roughly the same as that of exit signs commonly used aboard airplanes at the time.<sup>9</sup> However, those issues did not account for the public reaction in the event of a leak. As Bernard Manowitz noted

in 1948, “Radioactive pollution does not have to be injurious to health to be socially undesirable.”<sup>10</sup> It was a lesson relearned in 1997.

In early February, Lyle Schwartz from the National Institute for Standards and Technology was named as AUI President, replacing Robert Hughes. In early March, Samios announced he was stepping down as BNL director after fifteen years, effective April 30, and AUI announced a search for a replacement. At DOE, Federico Peña was confirmed as Secretary of Energy.

Terry Lash and Tara O’Toole of DOE visited the lab several times to give their perspective on the HFBR issue. They strongly suggested that communication with the public and media must be extensive, with a press release accompanying every safety-related or environmental event. Although that was a sign there was nothing to hide, highlighting every environmental discovery or action with a press release often meant that significant events were not distinguished from lesser ones, contributing to a picture of the lab as chaotic.<sup>11</sup> With some unknown legacy issues remaining, more surprises lay in store.

By March, more than four hundred sampling wells had been installed, including at the lab boundary (where no tritium was detected). The sampling was done to define the extent—width, length and depth—of the tritium plume by drilling wells near the reactor and moving south (the groundwater flow direction, which is about one foot per day) and east-west to measure its location and width.<sup>12</sup> Although this was a logical way to define the plume, it also meant almost weekly press releases, creating the impression the leak was rapidly growing in length or strength.<sup>13</sup>

The ongoing environmental assay discovered a 750-gallon concrete storage tank underground at the bottom of the tall venting stack for the HFBR (and previously for the closed BGRR reactor). It was found to contain water with significant levels of tritium and strontium. The tank was pumped out and ground testing began to see if any radioactivity had leaked out. Subsequent analysis of the ground near the now-empty tank showed that some tritium and strontium had leaked, results reported in several press releases.

A long article in *Newsday* described seven plumes of chemical or radioactive contaminants that the lab was addressing following its Superfund designation. It noted some of the issues were discovered via outreach to long-retired employees who could recall previous activities and the location of underground storage tanks. Ray Cowen of the New York State Department of Environmental Conservation (NYS-DEC) was quoted, “At first, I think the extent of their issues was a little shocking to them. I think it took them a while to get over that and say—Okay let’s get down to business.”<sup>14</sup> The article described both the contaminant issues and the actions being taken to address them. But it also pointed out long-term neglect of legacy environmental issues, including the unusual challenge of dealing with contaminated-soil removal, which involved scanning for unexploded ordnance left over from the army camp days.

An internal BNL report by an ad-hoc committee, headed by Robert Bari, evaluated BNL decision-making on environment, safety, and health (ESH)

matters and recommended changes.<sup>15</sup> They suggested that ESH budgets needed to be stabilized and that ESH matters needed to be raised in overall priority and include broader input to decisions on resources. They noted the DOE risk system for evaluating ESH priorities, which resulted in a single numerical score, was too simplistic. The priorities needed to include the broader judgments of management, for example how might the community react. The committee also noted that the two historical monitoring wells near the reactor were not positioned to monitor the spent fuel pool and were in places that would not see the tritium plume.

Late in March, I gave the first of numerous talks about BNL to a variety of community organizations at the Setauket Presbyterian Church. Although it included some science, the focus was on environmental issues and tritium. Mary Hibberd, the Suffolk County Health Commissioner, and Ray Cowen of NYDEC were in attendance. Hibberd was critical of the lab on a variety of issues and although Cowen was also critical, he put the risk in perspective by comparing it favorably to the Northville oil spill in Setauket, which had significantly impacted peoples' homes.

### **Political and Management Upheaval**

On April 1, Lyle Schwartz called me about my interest in becoming interim director. He told me I was on the candidate list for the director search and there was a need to have someone in place on May 1 following Samios stepping down. The next week, Schwartz and I had dinner at Lombardi's in Middle Island and he stated that DOE was hyper-sensitive to public opinion and wanted an external person, but AUI strongly disagreed. Nevertheless, both John Marburger, former president of Stony Brook University (at the time, the State University of New York at Stony Brook) and Allan Bromley of Yale had been approached, but demurred. I agreed to take the interim role pending DOE approval.

I talked with Martha Krebs (head of the DOE Office of Science) on the phone and O'Toole at BNL about the state and needs of the lab—both interviews seemed to go well. Later, Schwartz called to tell me that O'Toole was having second thoughts about my becoming director; the relative authority of AUI and DOE was at issue. Three days later, Schwartz called and stated O'Toole had vetoed me (I later learned from her that D'Amato had expressed to DOE that he was opposed to an AUI person being named). The AUI board was later notified that DOE had vetoed me and they voted to propose Schwartz as interim director with me as deputy for science and technology. The interim labels were nominally because the search for the director was not completed, but much more was going on behind the scene at DOE. (Incidentally, it was the first of many interim titles I would hold.)

In mid-April, Krebs came to the lab and talked to the management group about morale, expressing her lack of confidence in the lab's current leadership. She complained that Samios never visited her and others at DOE and said it was important for new management to do so and to keep DOE informed. She

emphasized that community relations were important and wanted on-site institutional planning to include representatives from off-site constituencies.

The final DOE safety management report on BNL criticized DOE oversight of the lab and stated that better interactions between the lab and DOE were needed. The report highlighted two areas of “significant weakness” at both DOE and BNL:

- a) clear roles and responsibilities—ESH decision making at both DOE and BNL were diffuse, so that people assumed it was someone else’s responsibility;
- b) balanced priorities—formality of operations needed to be increased, since science had been more of a priority than operations (akin to the Tiger Team statement of “there has been an overemphasis on research”).<sup>16</sup>

For a week, DOE had been deliberating about whether to approve the proposed new BNL management. Krebs finally called Schwartz at home to say DOE agreed to the new scheme. The new management team—Schwartz as interim director, me as interim deputy director for science, and Mike Bebon as interim deputy director for operations—was announced near the end of April. Senator D’Amato was upset at the choice of management. He stated, “what you need is someone who is not beholden to the AUI” and urged a quick replacement for the director.<sup>17</sup>

On April 30, Samios’s last day in office, a collaboration with the Japanese was signed which set up a center at BNL (RIKEN-BNL Research Center) to support early-career physicists. It was largely funded by Japan and recruited and trained scientists from around the world. It has continued to this day and produced a large number of successful young scientists.

On that same day, Schwartz and Hughes traveled to Washington, DC, and met with Secretary Peña, who told them that he was firing AUI as the contractor operating BNL. Hughes was taken aback, but Schwartz was not. There were implications that D’Amato was pushing hard against AUI. There was no public announcement, but the lab was notified that the secretary was to visit BNL the next day to meet with the local DOE office, various BNL groups, and members of the community, with a press conference to follow.

Unbeknown to those outside of DOE, an undated memo (April time frame) from several upper management DOE heads to the Secretary of Energy, obtained by a Freedom of Information Act (FOIA) request, laid out a number of reasons for changing management at BNL and options to do so. In addition to being dissatisfied with recent management performance, some felt that to “wake up” the DOE complex to improve ESH performance required something dramatic like firing a contractor. AUI was also viewed as a weak contractor since it had few resources to bring to the lab in case of need, in contrast to what a corporate entity might bring.

On May 1, the first official day in office for the new interim BNL management team, Secretary Peña came to the lab to announce that he was terminating the AUI management contract because the community no longer trusted the lab. This was the first time a national lab management contract had been terminated before



its expiration. Krebs looked ashen-faced and did not talk to me. Peña added that he had requested that EPA do a full facility inspection of the lab. Also at the press conference, O'Toole stated that the impact of not installing two new monitoring wells in 1996 was that millions will be spent on cleanup.<sup>18</sup> Ray Cowen of NYS-DEC, standing next to me, agreed with my comment that it was an incorrect claim, since the leak had been going on for over a decade the wells would not have saved much money in cleanup, but it would have moved the timeline of the issues about a year sooner.

The DOE announcement promised intensified DOE oversight headed by two interim DOE staff placed at BNL, John Wagoner (the DOE manager of the Richland, Washington, Operations Office) and Dean Helms (the DOE site manager at Thomas Jefferson National Laboratory). Helms was to report to Wagoner who reported directly to Peña. This new process bypassed at least one layer of DOE management and, as it turned out, the presence of these two men was to be vital to BNL, not only because they were talented and reasonable, but also because they had Peña's ear.

Although subsequent news reports referred to "termination" of AUI as the contractor, the full announcement stated AUI would continue in place until a new contractor was named and assumed control. Peña expected that to be in November, but it turned out to take four months longer. The fact that AUI continued operating the lab led to confusion in the media, the public and, most importantly, employees. The Associated Press, for example, incorrectly stated "the lab would be run by John Wagoner ... until a new contractor is hired."<sup>19</sup>

The timing of AUI's firing raised some additional issues. It came just as new individuals were appointed to leadership and thus before they could have an impact. As interim managers, it was uncertain how employees would accept them (us) and react to actions over the next months since they (we) were due to be short timers. With the new Director an unknown to most employees, I felt, as a long-term employee with a commitment to BNL, that I had an enhanced responsibility to build trust with the employees and to keep the laboratory together and functioning.

A blizzard of articles appeared in early May in many different publications including the *NY Times*, *Newsday*, *Science*, *Nature*,<sup>20</sup> and others about the reasons for the firing decision, as well as the wide-ranging impact of the decision to fire a lab contractor would have on other DOE labs.<sup>21</sup>

Carson Nealy, the head of the local DOE area office at BNL, transmitted the formal "termination letter" to AUI on May 2.<sup>22</sup> An embarrassing issue for DOE then arose concerning the annual evaluation that DOE had made of the contractor performance for the previous year. For 1996, the grade had been "excellent" for both science and for operations. The operations grade was based on performance in meeting targets and performing duties specified in AUI's contract with DOE. Thus, two weeks after the contract termination, DOE sent a letter to AUI re-grading ("overriding") BNL/AUI performance in operations to "marginal," largely

based on loss of trust with the community.<sup>23</sup> DOE agreed BNL had met the specific ESH performance metrics in the contract, but added that various other events related to management of ESH issues caused the override.<sup>24</sup> AUI wrote a strong protest letter to DOE about the termination.<sup>25</sup> Peña later told a subsequent review team from the General Accounting Office (GAO) that he was unaware of the initial DOE rating of excellent.<sup>26</sup>

In addition to the ongoing DOE and EPA reviews of the lab, New York State Governor George Pataki charged Attorney General Dennis Vacco with investigating BNL. Vacco registered his displeasure that state authorities had not been informed about the environmental issues in a timely manner.<sup>27</sup> His team had been part of the DOE review for months and the state had also been continuously updated.<sup>22</sup> A Suffolk County Task Force was also formed to look at the lab health and environmental issues. Dealing with all the review teams required a lot of employee effort.

Near the end of May, Schwartz and Helms met with BNL scientific staff and Schwartz showed a draft “termination” memo for BNL tenured scientists when AUI departed. Obviously, AUI would not be able to continue previous tenure commitments, but several scientists called for Schwartz’s resignation because of conflict of interest between corporate and lab duties. Their strong feeling was the lab director should prioritize supporting employees and the corporate officer should prioritize supporting the corporation. The memo, although not sent, resulted in a *Newsday* feature.<sup>28</sup> Near the end of May, Schwartz agreed that he could not maintain both his corporate and his laboratory roles and decided he would step down as lab director once a replacement could be found.

Despite assurances from DOE and our congressional representatives that employees would not lose their jobs, BNL employees (scientists in particular) expressed concern and some began to look elsewhere. Concerns about job security and the continual negative press coverage of the lab over the next eight months resulted in major distractions for employees, which I believe contributed to some of the events to come.

As a response to negative public portrayals of the lab, two internal groups self-organized to support BNL—Friends of Brookhaven and the Brookhaven Scientists Association (later renamed Brookhaven Organization of Scientists). I expressed to them how important it was not to work at cross purposes. Lab employees began to attend political meetings and defended the lab’s contributions to science and to the community. I believe these efforts encouraged more cooperation among different segments of the lab than had existed for some time.

## **Weathering Criticism**

In early June, Congressmen F. James Sensenbrenner and George Brown, chair and ranking minority member of the House Science Committee, respectively, wrote a long letter to the GAO expressing a variety of concerns about the AUI

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contract termination and calling on the office to investigate, “1) how the Brookhaven situation developed, including the breakdown of public trust; 2) who was at fault; 3) what conditions and management processes, or lack thereof, led to the tritium incident and to the decision to terminate AUI; and 4) the Department’s failure to put in place a management system that has clearly defined authority, roles, responsibilities and accountability for all those involved, from the Secretary down to the operational people at BNL.”<sup>29</sup> This report is quite detailed and pointed out errors and structural deficiencies at the lab and DOE.<sup>30</sup>

Representative Sensenbrenner had issued a press release criticizing DOE for authorizing more off-site home hook-ups to public water because the tritium leak was not a hazard off-site and wanted to withhold DOE funding for these hook-ups. He visited the lab and started to learn for the first time about off-site chemical contamination (known for years, and not just due to BNL). Sensenbrenner then met with Suffolk County Executive Gaffney who expressed support for BNL and had a press conference to state there was no intention in Congress to close the lab.

Within a week, radiation incidents occurred at both the medical reactor and the HFBR. Although neither resulted in major contamination of anyone, they added to the drumbeat of disturbing events at BNL. Five employees were exposed to radiation at the medical reactor following a test using Saran wrap that became radioactive. EPA and Suffolk County officials stated it was a minor matter. Under ordinary circumstances, it would have been investigated at the lab and would have been addressed internally, but every event was now a press release. At the HFBR, mishandling of a dummy fuel rod included a violation of procedures and small, slightly radioactive particles were picked up on clothing and found by the HFBR internal radiation detectors. These events also made headlines and triggered an HFBR safety stand-down. Workers raised a number of issues: DOE’s overly aggressive schedule to remove and package the spent fuel in the pool that required shortcutting procedures on fuel processing; asked some people to do things they were not trained for; and workers had too little input on procedure. In addition, workers indicated the radiation portal alarms sometime gave false alarms, adding to confusion and stress.

These events could be interpreted as evidence of employees being distracted by events and concerns about jobs. Of course, the periodic new findings of issues related to current or past practices and the almost-daily news releases projected an image of a chaotic situation. Many at the lab were slow to recognize that despite the fact the tritium plume was having no impact on health or safety, it did challenge the idea that BNL had matters under control.

Krebs arranged a conference call with the DOE lab directors focusing on planned reorganization of DOE, but she also got questions about the impact of DOE actions at BNL on the labs as a group, for example, why all labs would be punished when BNL was the problem. BNL actually had fewer environmental issues than some other labs, but BNL issues had a much higher profile in the media.

In early June, the AUI board of directors met to address a replacement for Schwartz as lab director. AUI leaked the proposal of David Moncton as their choice to *What's New* (a weekly online physics news brief). Moncton was quoted in *Newsday* that he was considering the job on an interim basis.<sup>31</sup> Wagoner told me privately that Moncton would withdraw (DOE was upset by the AUI leak, and may have had other reservations about Moncton) and asked if I would be willing to be director. I told him of previous DOE concerns with me. Moncton came to visit the lab, but later withdrew his name from consideration (as Wagoner predicted). Paul Martin and Schwartz of AUI asked me if I would serve as interim director. With Wagoner supporting me, it seemed clear DOE would approve my nomination and late in June they did.

Judy Panullo and Nanette Essel, who were part of the original community outreach group, made a strong statement to *Newsday* that D'Amato and Forbes were exploiting the tritium issue for political gain, hoping to burnish their poor environmental records.<sup>32</sup> *Newsday* noted, however, the group had been set up with a small grant from AUI and had an office at BNL, so their independence was questioned. At the same time, a *Newsday* editorial, although it criticized BNL environmental issues, supported the lab's future. Separating the criticism of the environmental issues from the long-term future of the lab was becoming more common in the press and with politicians.

A catastrophic event occurred later in June when a non-employee construction worker was killed at a lab work site after being hit by a large payload driven by his co-worker. Wagoner was on vacation, Schwartz was in DC, and Helms had to placate DOE headquarters. I went to the wake with some trepidation, but the family had no animosity toward BNL and, in fact, tried to help me feel better. The man's father stated that he did not hold the laboratory responsible. DOE ordered lab safety stand-down for several days as a result of the death and a DOE investigation began. There was a lot of discussion about ways to improve both safety and environmental performance. The primary finding of a major DOE investigation of the accident was that previous safety performance by contractors should be part of bid packages. O'Toole regarded the "lessons learned" summary from the stand-down positively and congratulated employees for speaking up. Needless to say, June was a tough month at the lab.

I was announced as the interim lab director in early July (and remained deputy director for science and technology). In one of my first actions, I, Bob Howe, and others met with the Mastic Beach Property Owners Association to describe BNL science and the environmental cleanup situation. The event was interactive, went well, and the organization supported the lab as the year progressed. Later, I began meeting with each of the major departments and divisions of the lab to answer questions and to fill them in on actions being taken.

Activist demonstrations and letters to the newspaper editors increased. An anti-radiation group, the Shad Alliance, held a protest at the lab front gate targeting the HFBR reactor. A long letter from the actor Alec Baldwin was published

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in the *East Hampton Star* calling for closure of the HFBR “to protect the health and safety of our loved ones and our environment.”<sup>33</sup> It was the first of a number of BNL-targeted letters or actions from Baldwin. Later in the month and going forward, outside letters of support of the lab and criticism of some of the activist statements began to appear in various publications and some lab employees wrote letters to newspaper editors describing the positives of the lab and contributions of employees to their communities.

On July 14, Forbes convened a town hall meeting at BNL. He apologized for overdramatizing the BNL environmental situation and stated he knew the HFBR was safe and supported its restart because of its scientific importance. He stated “We don’t want the reactor to shut down for the sake of just a couple of folks who don’t have a good understanding of its importance and safety. And it is a safe reactor and I’ve said that. Absent this problem, it has operated for many years without incident. And I think we have to make sure that we don’t react just for the sake that we think we’re soothing some sentiments out there.”<sup>34</sup> By early September, his stance would dramatically change.

The report of first phase of the EPA inspection of the lab site, commissioned in May, was delivered in a July 13 letter to DOE. It contained a number of findings and stated that although none of their findings posed an immediate threat to safety or the environment they needed to be addressed. I summarized the report in a July 15 press release and noted that some of the items had been corrected already. *Newsday* described EPA officials view of the findings as no more extensive than other facilities as large and complex as BNL, but the EPA administrator said it certainly was “sloppy housekeeping” and indicative of the culture.<sup>35</sup>

July brought mixed news on the environmental front. The cleanup of the chemical plumes, largely cleaning and decreasing agents, was proceeding well at the southern boundary of the lab. On the other hand, wells placed around the medical reactor showed signs of tritium, albeit well below the drinking-water standard, and there was a sudden brief spike in the tritium level at the sewage treatment plant. Both tritium events were unexpected and disturbing. Senator D’Amato compared the situation at the lab to the Keystone Kops being in charge and Forbes and D’Amato wrote a letter to Peña requesting that an independent environmental manager be appointed at BNL.<sup>36</sup> The lab undertook internal investigations of possible sources of both events. Two sources of tritium were identified near the medical reactor and a month-long extensive investigation of the tritium spike at the sewage treatment plant began.

In early August, at a DOE advisory committee meeting (BESAC) focused on neutron science and the possible future of HFBR, I made a presentation on the history of reactors at BNL and the current status of the HFBR. Bill Gunther detailed the environmental events surrounding the Superfund designation and tritium plume. The leading edge of the plume was now being pumped back up to a recharge basin at the center of the site. Seven hundred wells were monitoring the lab site and another hundred were monitoring off site. The presentations were

followed by a long discussion about relations with the community and reasons for and some options for possible restart of the HFBR in the longer term. At the end of the three-day meeting, the committee strongly recommended an expeditious restart of the HFBR because of its unique capabilities, acknowledging that an environmental impact statement would be required.

The process to replace AUI as the contractor was proceeding and over the next several months I was contacted by what would eventually be three teams working on bids. *Newsday* published an article stating that there were two teams planning to bid: SUNY Stony Brook teamed with Battelle and the Rensselaer Polytechnic Institute (RPI) teamed with Westinghouse. The article highlighted that two New York universities were competing against each other. An editorial in *Newsday* strongly endorsed the Stony Brook bid. AUI decided not to rebid because they could not find a partner and released a statement criticizing DOE actions and detailing its long-time success as a contractor.

A mix of progress and problems continued. The cleanup of a former dumping ground for waste of various sorts at the lab was completed without incident despite DOE being dubious that BNL was capable. However, another *Newsday* article about early (1950s–1960s) boron neutron capture therapy cancer treatments at BNL contained a number of negative statements from family members about how patients were treated.<sup>37</sup> And there was another increase of tritium at the sewage treatment plant, but at lower levels than in July. In this case, it was clear that it came from within the HFBR building and the water was temporarily diverted to a holdup pond. Another protest to permanently close the HFBR was held at the front gate.

Fred Dombo (Forbes aide) visited the lab and over the next few months I had numerous interactions with him. Just before the Labor Day weekend, he called late in the day to ask whether we could use National Institute of Health money and asked how Congressman Forbes could reach me over the Labor Day weekend. I gave him my home number and the number where I expected to be. I did not get a call. Unbeknownst to me, Forbes had written letters to Peña, Krebs, and the head of the EPA (Browner) calling for the permanent closing of the HFBR. I later saw the letter and I sent a letter to Krebs about inaccuracies in it which I attributed to his being “misinformed.” He wanted a third-party review of BNL and I noted we had a plethora of third party reviews already. He was concerned about the continual findings of environmental issues and yet he complained that we were not open about releasing information. Then there were some specifics about accuracy of findings by EPA and the history of the tritium findings.

On Labor Day, I returned from New Hampshire at night with many telephone messages about a rumored D’Amato-Forbes press conference the next day calling for closure of the HFBR. The next morning *Science* magazine called to ask about a response to the press conference in Mineola. Marge Lynch, the head of BNL public relations, advised me to go. When I entered the Mineola press room, Diana Weir (Forbes’s aid) saw me and rushed back to talk to D’Amato and Forbes.

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There was much delay in starting the press conference. Weir came back and told me that I must call Krebs—I responded that I did not have a phone or the number. They rushed around to get a cell phone and the number. I refused to call Krebs until I heard what was being said.

The press conference started late with an announcement that they had introduced legislation to close the HFBR. They continued with criticism of an “arrogant culture” and “public-be-damned attitude” at BNL and claimed that the lab was “withholding information.”<sup>38</sup> D’Amato also stated the closure would have a minor impact on the lab budget and added that he supported the other valuable research at the lab. When the question period began, I called Krebs, who said D’Amato had called and expressed concern that I might take the podium and make a speech. She told me I should not be there. I told her that I had no intent to give a speech, but the press was going to ask for a response whether I was there or not, and I got them all at once if I was there. She hung up and I went back in to hear D’Amato say how he secured BNL funding for RHIC, the major new accelerator at BNL. Then I answered questions from reporters, saying that I was disappointed that the agreement to have an environmental impact statement report on the HFBR before deciding on whether to restart was not being observed. It was also a disappointing reversal of Forbes’s July statement in support for the reactor. I was quoted the next day in most newspapers as saying I was “disheartened they were short-circuiting the process for the HFBR.”<sup>39</sup> Peña had a subsequent meeting with D’Amato and Forbes explaining the environmental impact statement process and sent a clarifying letter to them reaffirming that he would continue the environmental impact statement process related to HFBR.<sup>40</sup> I traveled to Washington to talk to Forbes, Dombo, and Nappi, D’Amato chief aid. I told them that I understood we could come to different conclusions, but I did not appreciate being blindsided (I think I said “sandbagged”) with their call for a permanent closure of the HFBR. Forbes apologized and said he meant to call me. Nappi warned me not to attack Forbes, after I already had talked to him.

Over the next several weeks, I had several more interactions with Congressman Forbes. I had a brief joint call-in morning mini-interview with him on local channel 12. Then in mid-September I “debated” Forbes in a half-hour show again on channel 12. I tried to correct a number of his misimpressions and a number of employees emailed me about how well they thought the discussion had gone. Forbes sent a four-page letter to his constituents calling for the closing of the HFBR. The letter, entitled “An Urgent Message from Congressman Forbes,” started by calling for permanent shutdown of the “leaking” HFBR and then interspersed discussion of various legacy and current environmental issues with ones specific to the tritium from the spent fuel pool. In sharp contrast to his stated position July 14 to employees, he now wrote: “It would be foolhardy and quite irresponsible to knowingly permit the re-start of this outdated, aging nuclear reactor with such a questionable history,” and later, “You can always count on me to be honest with you.”<sup>41</sup> I sent a memo to employees correcting incorrect

statements or misrepresentations in the Forbes newsletter and several AUI trustees sent emails of strong support for my action.<sup>42</sup>

Late in the month, D'Amato and Forbes added an amendment to an appropriation bill to forbid money being used for restart of HFBR for a year and sent letters to many Long Island papers calling for closure of the HFBR. Several different organizations criticized that action and stated that the environmental impact statement should proceed. These included *Newsday*, the Long Island Association, EPA, and a community group, ABCO. I should add that both Forbes and D'Amato supported other activities at the laboratory and were not calling for its closure.

A series of letters from D'Amato began to appear in various newspapers criticizing BNL management and environmental practices, which continued as the year went on.<sup>43</sup> Among other concerns, he accused BNL of "contemptuous disregard for environmental safety" and requested that an extensive environmental review of BNL take place, seeming to ignore the ongoing reviews by DOE, EPA, Suffolk County, and New York State, as well as BNL's own internal review. I wrote clarifying letters to papers that had published D'Amato's letters.<sup>44</sup> In addition to correcting some of his statements, the primary reason for my responses was to support lab employees, since the continual bashing was damaging morale.<sup>45</sup> I received a number of letters of thanks from them. During the whole year, I did not hear directly from D'Amato or his staff. In contrast, I heard from Forbes's staff quite frequently.

### **Management Changes and Outreach Efforts**

In light of Forbes's about-face on the HFBR, the newly formed Brookhaven Retired Employees Association joined with the Brookhaven Scientists Association and Friends of Brookhaven at two separate rallies at Forbes local office during lunch time. Several hundred employees showed up the first time and many more the second time.

I joined other BNL officials in speaking to the media about the status of and actions related to the many environmental issues. Of the numerous updates, one was highlighted in the press. The extensive investigation of the source of the July tritium spike at the sewage treatment plant had narrowed the possible source of tritium to, most likely, the HFBR. However, in contrast to the August spike, a drain outside the HFBR had shown no sign of tritium. A deliberate spike by someone remained possible, for example, someone could have taken tritium out of the HFBR. Although the total tritium release had been under the regulatory upper limit, the lack of a definitive conclusion was another negative event. DOE later sent an investigative team, which also failed to reach a definite conclusion, but also stated that the possibility of deliberate action by an individual remained. That committee recommended adding some additional monitoring stations so future causes could be more clearly determined.



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In September, sudden chaos descended on the search for a new contractor to run the lab. DOE had extended the original date for bids by several weeks, but the day before the deadline for bid submission, the RPI/Westinghouse team withdrew its intention to bid as the bidding package was being printed. It was stated that the RPI trustees had vetoed it, but some people suggested that D'Amato might have had influence at RPI and wanted Stony Brook without competition (he had close ties to the university). DOE now extended the deadline for bids for another two weeks as they were embarrassed at only having one bidder. Westinghouse now partnered with the IIT Research Institute (IITRI), and the new team had only two weeks to put everything together. They were clearly at a disadvantage, since the other bidder had submitted boxes of documents. DOE stated the new team did not need time because Westinghouse had been part of previous bid team. However, IITRI, as the new member, had a short time to assemble their part of the bid. The bid by IITRI/Westinghouse reached DOE just before deadline. In October, both bidding teams presented to the DOE Source Evaluation Board (SEB) in Washington, which was dominated by non-scientists. This was an indication that DOE was now emphasizing non-science operational issues in their new contracts.

The DOE independent oversight committee published a follow-up report on the state of tritium remediation. Their conclusion was, "Current management of the BNL tritium remediation project is effective and progress has been substantial." It also highlighted the continuing challenges, "such as potential funding and staff reductions, the upcoming transition of contractors and the need to devote resources," as well as the known and perhaps as yet unknown environmental issues.<sup>46</sup>

A major environmental surprise occurred when the deep drain sump, part of the exhaust air duct of the long-closed, air-cooled Brookhaven Graphite Research Reactor (BGRR) was opened and inspected and a large amount of water (60,000 gallons) containing a large amount of radioactivity was found. The BGRR had been shut for thirty years and the DOE and its predecessor agencies had provided no decommissioning money, other than what was necessary to get rid of the spent fuel. It had been planned for cleanup by 2002 as part of Superfund, but finding water was a major surprise and a further example of how neither the lab nor DOE had been monitoring it. A plan to pump out this sump had to address a number of issues.<sup>47</sup> These included how to pump the contaminated water, where to get rid of it, and how to transport it. Suffolk County was naturally concerned about tracking the shipments. A concern remained about whether there was enough remnant plutonium to worry about after the water was pumped out. Once that was determined not to be an issue and we were ready to pump, EPA held up pumping because they wanted to review everything, which was a frustration to BNL. After the delay pumping did begin.

The Agency for Toxic Substance and Disease Registry, as an independent agency, was asked to assess the state of drinking water offsite. It found that "the levels of individual volatile organic compounds (VOCs) and radionuclides are not

sufficient to produce adverse health effects.”<sup>48</sup> It reaffirmed what DOE and Suffolk County had concluded.

Interspersed with dealing with the issues of the moment, I had some more enjoyable, and hopefully useful, times giving talks about the lab to a variety of community groups, including civic organizations and the Suffolk County High School Principals. Although occasionally there would be an angry question, nearly all were focused on learning more about BNL science. However, following a talk to the Small Business Council of the Long Island Association, the first question began, “that was great, I never knew what went on at **Brooklyn** National Lab.” That certainly was a mixed message as to how effective I was in communicating. I also presented the process for possible restart of the HFBR to the Long Island Association (a business group). My overall impression from talks to all groups was that the large majority of people had little knowledge of what BNL was all about and were interested in learning.

DOE was undergoing internal changes. O’Toole announced her resignation effective October 17. One of her public statements that activists were repeating was troublesome to DOE—that a reactor should not be built on top of an aquifer. DOE had built three of them at BNL over the years and Peña was calling for an environmental impact statement that might lead to restarting one, so the words provided activists with support from a DOE official in their efforts to close the reactors. I wrote an email to O’Toole wishing her well, but also expressing my views about some of the DOE decision making and interaction of facts with politics. O’Toole responded stating there are “no facts, only data” and the “politics has an allure.” It was one of a number of email interchanges we had.

The environmental, activist, and political issues continued. A new group, STAR (Standing for Truth About Radiation) held a fundraiser, hosted by Alec Baldwin, which included Helen Caldicott, Jan Schlichtman, and Jay Gould. Caldicott called for closure of the lab, but when asked for comment, Forbes said, “I vehemently oppose any effort to shut down Brookhaven National Laboratory” and D’Amato said “I would fight it every step of the way.”<sup>49</sup> An article by the anti-nuclear journalist Karl Grossman about BNL issues quoted Forbes about the HFBR, “I have not been deterred in my core belief that this aging, 32 year old reactor holds more peril than promise for the future.”<sup>50</sup>

In response to a Baldwin letter about the lab causing breast cancer, I invited him to come and tour the lab. He replied in a letter dated October 27 formally accepting a visit to BNL (provided he could bring others) to discuss a number of issues, including establishing a community oversight panel. Two dates were tentatively agreed to, but then cancelled. STAR later proposed an off-site meeting in late December. Earlier I received a letter from the Reverend Ed Townsend who wanted to bring Leon Jaroff (a contributor to *Time* and *Newsweek* and founder of *Discover* magazine) and a resident of the Hamptons to the lab. We met and discussed the lab activities. Over several years, Jaroff would write a number of biting letters to the editor of the *East Hampton Star* criticizing statements made by

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many of the anti-nuclear activists that he viewed as incorrect claims related to radioactivity, health, and the lab. These letters provoked Alec Baldwin in a letter to the *East Hampton Star* to write that Jaroff “could not be more of a whore for Brookhaven National Laboratory ... or anyone else in the nuclear contamination business who will take you out for a drink.”<sup>51</sup> Jaroff’s response was, “Well, Alec, unlike a whore, I do not provide my services to the Brookhaven Lab for money, nor do I expect or get even a free drink out of it. I defend Brookhaven against extremist know-nothings strictly out of conviction, and out of knowledge that is obviously superior to yours.”<sup>52</sup>

Late in the month, a multi-party agreement, which included Fish Unlimited, was signed for sampling the Peconic River for contamination. A very useful risk-communication workshop was held at BNL, delivered by Vincent Covello, which, in retrospect, should have happened much earlier. He showed real-life examples of what kind of statements amplify a crisis and many of us at the lab could have responded better and perhaps helped reduce the level of criticism.

In November, the GAO report on the tritium leak and the dismissal of AUI was published. It emphasized that DOE and AUI shared fault for the issues at BNL and harshly criticized DOE for its lack of oversight and confused reporting structure. Both Sensenbrenner and Brown of the House Science Committee wrote a letter to the GAO pointing out that previous reviews had also identified DOE weaknesses in managing not only BNL, but the other national laboratories and asked what actions had been taken, or not taken, by DOE in response to previous and current recommendations.<sup>53</sup>

Alex Flint, chief staffer for Senator Pete Domenici, called in early November and said Domenici wanted to visit the lab on December 3 and did not want press coverage. Three weeks later, D’Amato was quoted in *Newsday* that he wanted to invite Domenici to the lab.<sup>54</sup> Flint called to change the date of Domenici’s visit to December 8 and said he would inform D’Amato and Forbes. Later, D’Amato said he could not make that date and any visit was cancelled for both of them. It appeared that D’Amato wanted to control any interactions with BNL. Flint called to apologize to me.

The New York State Attorney General Vacco’s report on BNL called for improvements in environmental performance prior to considering a restart of the HFBR.<sup>55</sup> Helms, Sue Davis, and I met with his staff in New York City to discuss updates on progress and various factual issues in the report. They seemed surprised that we were responding to the report and letter about the HFBR restart process. Helms promised a letter confirming what we discussed within a month. The letter was drafted and sent to DOE headquarters for approval; six months later it emerged and was sent to Vacco with an understandable negative reaction to the delay. It inspired him to call for closure of the HFBR.

Later in the month, a one day conference at BNL discussed forming a community advisory board to replace the Brookhaven Executive Roundtable, which was made up of health and environmental regulators from federal, state, and local

venues. A Community Advisory Council was eventually established and over the next years was a positive factor in changing attitudes about the lab, largely through education, but also by providing a forum for community members to interact directly with management.

Physicians for Social Responsibility, an organization that Helen Caldicott helped revive, had visited BNL in June without her and I met with them. Their initial reaction was a positive one. In November, I got a call from Dr. Herbert Perr, the local head of the organization, to say they planned to call for the HFBR's closure. He said he was calling to inform me since I seemed reasonable. The reasons he gave were: 1) a recent study (Santa Susana) at Rocketdyne in California claimed very low radiation levels caused higher levels of cancer than expected, 2) DOE and AEC had a history of eroding public trust, 3) Representative Sensenbrenner said DOE was not reliable, and 4) there was a high rate of rhabdomyosarcoma near the lab. In response, I got a copy of Santa Susana report and was struck by how poorly the data supported the conclusions. Later I collaborated with Roger Grimson, a professor at SUNY Stony Brook, on a note to *Health Physics*, noting that the uncertainties were so large that they were consistent with almost any conclusion. When I met a lead author of the Santa Susana report, he told me that he did not pay much attention to uncertainties. I also learned that rhabdomyosarcoma is not particularly high near BNL; for example, it was nearly twice as high in King's County, which encompasses Brooklyn. I informed Dr. Perr of these issues and sent a copy of the GAO report to him.

DOE announced that it was postponing the contractor selection announcement from November to January because of a congressional mandate to give sixty-day notification to Congress. Forbes and D'Amato insisted that DOE was reading the requirement too narrowly and a waiver was granted to make an announcement, but to delay signing the contract until January. Near the end of November, at a packed meeting in the BNL auditorium, the management team of the new contractor, Brookhaven Science Associates (BSA), who were to take over March 1 after a transition period, was introduced. The director to be, Jack Marburger of SUNY Stony Brook, acknowledged me and there was standing applause, which surprised me and which I found to be quite emotional. Bill Graves asked Marburger whether I would have a role in the future and he responded positively. The next day, Marburger described the new management style, "The previous board was science oriented and that's not a bad thing, but BSA will tend to be more management oriented."<sup>56</sup> Both D'Amato and Forbes were pleased with the new contractor and employees were relieved to finally have longer term management in place. Some in the community were more cautious in their optimism. A couple of days later, I met with Marburger for breakfast to discuss my future. He focused on possible titles; I wanted to discuss my role and said I did not want to return to being physics department chair after having served in that role for ten years. The announcement of the new contractor, as with the announcement of the AUI firing, led to confusion. I remained director and AUI remained the contractor until

March 1. This transition reprised the awkwardness and uncertainty about who was in charge that accompanied AUI's firing in May.

### **Strained Public Relations**

Familiar issues dominated December: cleanup, activists, and the HFBR restart. A distinguished group of six scientists co-signed a letter to Peña urging restart of the HFBR.<sup>57</sup> It included Nobel Prize winners as well as a future head of the DOE office of science. Peña announced that he was postponing a decision on the HFBR until December 1998 to allow the environmental impact assessment to be completed (it was also after the November election faced by Forbes and D'Amato). The DOE committee BESAC formally recommended a quick restart of the HFBR and a letter from the Manorville Taxpayers Association (a group southeast of the lab) to Peña urged the restart of HFBR. An off-beat proposal was received from Pete Maniscalco, one of the anti-nuclear activists, to allow a Navajo pipe smoking ceremony at the HFBR on December 21 (the winter solstice), but DOE declined to grant permission.

On the evening of December 5, I went to a STAR meeting in East Hampton. Among the speakers were four activists: Alice Slater, Caldicott, Gould, and William Weida, a professor of economics at Colorado College, who had a history of work in the Defense Department. A number of speakers erroneously claimed that there are nuclear weapons at BNL and insisted that the lab get rid of them. Caldicott said she was lied to at BNL, but it was not clear what about. She also stated the BGRR was water cooled and said plutonium was dumped on-site. I later had an email interchange with Weida on his study of the budgets and activities at BNL and noted a variety of errors, such as the belief that work on non-proliferation of nuclear weapons is work on nuclear weapons, and stated he should have contacted us.<sup>58</sup>

Catholic Bishop Gumbleton from Detroit held a news conference at the gates of BNL on December 17, accompanied by Caldicott and Maniscalco, and called for closure of the HFBR. Caldicott spoke at length, making statements such as "this lab represents evil," "this lab's killing people," "the lab has been associated with nuclear weapons," the contaminated water in the BGRR ducts "was put there purposely by the lab," BNL is "sucking the most contaminated [with tritium] water down towards the populated people ... in Shirley and Brookhaven."<sup>59</sup>

After two previous on-site scheduled meetings were cancelled, STAR sent a letter confirming a meeting with Alec Baldwin and others on December 22 from 2 to 4 p.m., at SUNY Stony Brook. Marburger, Gunther, Lynch, Helms, and I met with STAR representatives Alec Baldwin, Scott Cullen, Helen Caldicott, Jan Schlichtmann, Peter Strugatz, and Karl Grossman. Baldwin would not allow Jordan Rau of *Newsday* into the meeting, but Grossman was allowed which stimulated a *Newsday* story the next day. Schlichtman started by stating STAR wanted to help the lab by being a bridge to community; STAR was interested in establishing a

community oversight committee. There were a number of disagreements with Caldicott on facts about the BGRR and radiation. Baldwin did try to calm Caldicott down a couple of times, but also lectured and talked about his wife Kim Basinger wanting to settle down on a peaceful farm on the East End. I mentioned the errors of fact made at the STAR meeting on December 5 and they asked for details. As requested, I wrote a letter to Scott Cullen, a STAR member, addressing issues of fact including errors in Weida's analysis of BNL. Subsequently, Weida wrote a letter to Peña calling for my firing.

There was some good news on the cleanup front. Pumping contaminated water out of the deep drain sump was going well. The 60,000 gallons were put in 7,000-gallon tanker trucks and shipped to Hanford for disposal. The spent fuel elements from the HFBR had been shipped out earlier and the pump-out of the HFBR spent-fuel pool had begun in mid-December and was completed by the end of the month.

A new state-of-the-art hazardous waste facility was opened and the cleanup of the legacy waste facility fell under the Superfund cleanup actions. The latest update on possible legacy environmental issues covered 560 existing or previously known facilities. The areas to be investigated for possible contamination included the now-vacant site of a medical complex used by both the army and BNL in its early years and various abandoned oil sumps and tanks.

Early in January 1998, the BSA management team arrived to sign a contract with DOE and to begin the sixty-day transition period. I gave a state-of-the-lab overview to the new team, including science as well as completed and ongoing operational issues. We were informed by DOE that the transition costs to the new management would be high, roughly \$10 million.

Alec Baldwin had persuaded the Montel Williams TV show to feature BNL, and in particular the reactors, as the cause of many health problems on Long Island and in particular among children. Liz Smith gave a "bravo" to Alec Baldwin in her column for his role in the program, which aired January 9, 1998.<sup>60</sup> Parents whose children had died or were ill were featured and BNL was attributed as the cause. A low point was when Baldwin and Williams had a child say that his cancer was caused by BNL and then suggested he videotape an anti-BNL segment. Baldwin said he could have his own trailer and Williams said his agent could get money for him. The boy sounded unenthusiastic (and I suspect baffled by some of the references that only entertainers would understand). Helen Caldicott said all the various agency assessments of cancer rates were biased and needed "independent" assessment, that is, presumably one that shows rates are higher. She also accused New York State of withholding cancer data near BNL. The Suffolk County Environmental Task Force had reported there was no evidence for higher cancer rates near BNL and Roger Grimson, the head of the Task Force, said that anyone looking at the data would come to the same conclusion.<sup>61</sup> A *Newsday* article summarized the show and noted the challenges to the claims. I was quoted as stating the show was "fear mongering at its worst."<sup>62</sup> STAR had written to Peña

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requesting an in-person meeting to discuss solutions to issues at BNL, including a health study. Later, DOE announced a study to assess whether an epidemiological study of health effects on current and former BNL employees by the National Institute of Occupational Safety and Health was warranted.<sup>63</sup>

Shortly before the first BSA board of trustees meeting near the end of January, a coalition of twenty-eight organizations focused on the environment and health consequences, the Community Alliance for Lab Accountability (CALA), was formed to consolidate their oversight of BNL activities. One of their first requests was to be part of the new BSA board of trustees, a request the board denied.

Late in January, I was surprised, in light of our numerous disagreements, to receive a call from Forbes to say what a pleasure it was working with me and that he hoped I would stay in the picture. The interaction with politicians over the year proved a learning experience as public comments and private interactions were quite different. Although there were major criticisms of BNL and its management in public, my private interactions on budget and other issues were professional and even evoked an apology from him about not informing me about the September press conference calling for closure of the HFBR.

A *NY Times* article in February about Senator D'Amato's environmental record stated his rating increased dramatically in 1997, but was still the lowest of anyone in the northeast.<sup>64</sup> It had been seven in 1995 and zero in 1996, but increased to twenty-nine in 1997 (out of one hundred senators)—largely because of his aggressive stance on BNL. The proposed cleanup money for BNL in the new DOE budget was cut substantially and D'Amato and Forbes were critical of the budget and stated they would fight for more. And in fact, Forbes's and D'Amato staff both requested information on where BNL needed funding.

A \$1 billion lawsuit was filed by residents living south of the lab claiming illness and lower property values because of BNL. About the same time the Suffolk County Director of Environmental Quality sent a report of tritium monitoring in sixty-two public water supply wells at and around BNL as well as elsewhere in Suffolk. They found all well below the threshold level of 1,000 pCi/l (drinking water standard is 20,000 pCi/l).

After getting approval from Helms, and with some rewording, I sent a memo stating how BNL would address its budget problem by including a 1% increase in the overhead rate. DOE headquarters ordered me to withdraw it. I complained and Milt Johnson of DOE said I was restrained in my complaint. Interestingly, Marburger told Helms and me that BNL overhead was not high enough, that DOE must pay more for science and this theme was repeated by the new contractor, BSA, continuously over the next years after they officially assumed their role on March 1.

The Suffolk County Task Force report was published in three parts—health effects and environmental effects due to both radiological and non-radiological contamination. Although the health study had found high breast cancer rates on

the east end of Long Island, it did not find high rates near BNL, however it did support an independent health study of current and former BNL workers. The environmental recommendations focused on the conclusions that: residents able to take advantage of the DOE offer of municipal water should do so; that BNL should upgrade its on-site sewage treatment plant; ensure compliance with Suffolk County Sanitary Code article 12 (secondary containment of tanks); and that New York State Department of Environmental Conservation and EPA evaluate the various emissions sources from BNL.

From late 1996 until BSA assumed control on March 1, 1998, many legacy environmental issues had been identified and/or addressed at the lab and more would be addressed going forward. A major lesson learned was that although there had never been a health risk to the public, the fact that many environmental issues were unexpected indicated poor oversight by the lab and DOE and both organizations lost a lot of credibility that would take a number of years to regain. There was an evolution in the tone of reporting of activists' actions as the year went on as media reports and officials began to target the misstatements and became more supportive of the lab actions and its future.

### **Impacts of the BNL Experience**

The events at BNL had a significant impact nationally as DOE changed the way it evaluated contracts for bidders to operate its national laboratories. Nearly all new contracts included consortia of organizations, one focused on science and one or more focused on non-science operations. Subsequent contracts for DOE laboratories, Oak Ridge, Fermi, Thomas Jefferson, Los Alamos, and Livermore all mirrored in some way the consortia structure DOE implemented at BNL. One significant difference was that weapons labs had a for-profit structure and the office of science labs had a not-for-profit status. Unfortunately, some aspects of how the DOE interacted with the labs were only temporarily improved.

The change in lab management on March 1 did not bring a sudden resolution to the environmental issues or a change in the level of activism. On the day BSA took over, an accusation of an ex-employee about another environmental issue arose. STAR took up the cause, continued its focus on the lab and the closure of the HFBR. However, over the next few years, environmental issues were addressed and with the establishment of a Community Advisory Committee (CAC) and actions of Marburger,<sup>65</sup> BNL interactions with the community began to improve and the strength of the anti-nuclear activists diminished. The CAC was composed of a broad cross section of representatives of community and activist organizations, as well as interested individuals. Members of upper BNL management attended the meetings that were masterfully facilitated by an outside person, Reed Hodgson. Some of the early meetings were quite raucous, but the direct interactions and questioning by individuals of lab people slowly built up credibility on both sides. Extreme views expressed by some members were challenged by others



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on the committee, which lessened their impact since it was not BNL management responding.

In July 1998, there was a DOE senior managers meeting on improving performance of DOE and its laboratories, which included a couple of sessions on “lessons learned” from the 1997 BNL episode. Tara O’Toole gave a major address and noted it was an extraordinary concatenation of factors that caused the dramatic events, not just some specific failures. She listed many of the issues described above: the community concerns; the changing of management at both BNL and DOE; the BNL scientists focus on quantitative measures; the perspective of BNL and Washington were very different; DOE had internal conflicts; and D’Amato needed an environmental issue. She had become very concerned that DOE was not learning lessons as an organization. She criticized the approach of the “gotcha” culture of ESH management and stated a new style of ESH management was required. In my brief talk I pointed out the relationship between BNL and the local DOE office needed to be more of a partnership, as it became during the year and having a direct link to DOE HQ was a benefit. A major issue had been there was no clear owner of legacy waste at BNL. At BNL management had not changed in a timely manner and communications with the community and employees needed strengthening. At DOE there was too much micromanagement, there were sometimes conflicting directions from different DOE offices. The GAO presentation focused on criticism of DOE oversight of its labs and suggested NIST dealt with environmental issues much better.

### **Afterward**

At a 1998 event at the new BNL Waste Management Facility, Senator D’Amato, who had strongly criticized BNL and its management and who had never directly contacted me, came up to me, put his arm on my shoulder and said, “Great to see you Pete, how are things going.” Employees are amazed (as was I).

Within a couple of years, most of the high-profile figures involved with the BNL issues in the fifteen-month period were no longer in office. In April 1998, Secretary Peña announced his resignation from DOE and Lyle Schwartz resigned from AUI—both essentially one year after they assumed their positions. Later that year D’Amato, was defeated for his Senate seat by Chuck Schumer. In 1999 Representative Forbes, on a Friday, had locks changed to his Congressional office and fired his entire staff without notice. He changed parties and became a Democrat. As a result, he was later challenged in a primary and partly because of BNL votes, lost the primary in 2000.

In 1999 DOE Secretary Richardson decided to shut HFBR permanently after meeting with STAR people (in particular Christy Brinkley) both in DC and in the

Hamptons on Long Island. Thus, in the end, both operating reactors at BNL were closed as the anti-nuclear activists desired.<sup>66</sup>

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<sup>3</sup> For the history of the HFBR, see John J. Rush, “US Neutron Facility Development in the Last Half-Century: A Cautionary Tale,” *Physics in Perspective* **17**, no. 2 (2015), 135–55 and Robert P. Crease, “Anxious History: The High Flux Beam Reactor and Brookhaven National Laboratory,” *Historical Studies in the Physical and Biological Sciences* **32**, no. 1 (2001), 41–56.

<sup>4</sup> *Health Physics Society Newsletter*, October 1996, 15–16. This and other original documents are in the author’s possession unless otherwise noted.

<sup>5</sup> Beth Greenfield, “Anti-Nuclear Activist/Helen Caldicott Issues a Warning,” *Southampton Press*, August 15, 1996, <http://archive.southamptonpress.com/shpress/1996-3/96081521.htm>.

<sup>6</sup> Beth Greenfield, “Enemies of Brookhaven Lab Cite ‘Lies, Secrecy, Silence,’” *Southampton Press*, November 29, 1996.

<sup>7</sup> John Rather, “High A-Levels in Water Spur Brookhaven Lab,” *New York Times*, January 26, 1997; Joe Haberstroh, “Brookhaven Lab Probe Sought,” *Newsday* January 24, 1997.

<sup>8</sup> Interim Report on the Office of Environment, Safety and Health Oversight of the Tritium Groundwater Plume Recovery Activities at the Brookhaven National Laboratory, February 1997.

<sup>9</sup> In 1948 Bernard Manowitz, an early lab employee, wrote a memo to Deputy Director Warren Winsche evaluating possible future environmental spills and recommended that facilities should be built in the center or northerly portion of the site to allow time to address them before they got off site. A 1954 BNL Progress Report stated the US Geological Survey was completing a several-year study of geology under the lab that confirmed that conclusion and that water underground was flowing no more than one foot per day.

<sup>10</sup> Bernard Manowitz, BNL memo to Warren Winsche, April 19, 1948.

<sup>11</sup> BNL press releases can be accessed at <https://www.bnl.gov/newsroom>.

<sup>12</sup> Nine drilling companies were producing five-hundred samples a day to be analyzed for tritium.

<sup>13</sup> When the plume was defined, it was concluded the leak had been about five gallons a day and had been going on for about twelve years.

<sup>14</sup> Joe Haberstroh and Liam Plevin, “Down to Business,” *Newsday*, April 21, 1997.

<sup>15</sup> “Report of the Ad-Hoc Committee on Environment Safety and Health Decision Making at Brookhaven National Laboratory,” April 29, 1997.

<sup>16</sup> “Integrated Safety Management Evaluation of Brookhaven National Laboratory,” April 1997.

<sup>17</sup> Joe Haberstroh and Liam Plevin, “Lab Appoints Interim Boss,” *Newsday*, April 29, 1997.

<sup>18</sup> DOE Fact Sheet handed out at press conference May 1, 1997.

<sup>19</sup> Associated Press, “Energy Secretary Throws Out Management at Brookhaven Lab,” May 2, 1997. Wagoner returned to his position at Richland after about three months at BNL.

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- <sup>20</sup> Dan Barry, "U.S. Energy Chief Removes Manager for Brookhaven," *New York Times*, May 2, 1997, <http://www.nytimes.com/1997/05/02/nyregion/us-energy-chief-removes-manager-for-brookhaven.html>; Liam Plevin and Joe Haberstroh, "Blame All Around," *Newsday*, May 1, 1997; Andrew Lawler, "Changes at Brookhaven Shock National Lab System," *Science* **276**, no. 5314 (1997), 890; "Red Tape Must Not Strangle Good Science," *Nature* **387**, no. 6629 (1997), 114.
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- <sup>25</sup> Lyle Schwartz, letters to Carson Nealy, May 20, 1997, and May 23, 1997.
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- <sup>41</sup> Michael Forbes, letter to constituents, September 8, 1997.
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- <sup>43</sup> As an example, Alfonse M. D'Amato, letter to the editor, *Newsday*, September 29, 1997.
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- <sup>45</sup> Two examples of the increased stress on employees: one made a telephone threat to an activist and another asked to step down from a position of authority.
- <sup>46</sup> "Independent Oversight Followup Review of the Status of Groundwater Plume Recovery Activities at the Brookhaven National Laboratory," October 1997.

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