

DOE Office of Hearings and Appeals Partially Approves EDI-KYNF FOIA Request

Apparently the Department of Energy (DOE) did not get President Obama's message on his first day in office directive that "starting today, every agency and department should know that this administration stands on the side not of those who seek to withhold information but those who seek to make it known."

In a 3/25/09 certified letter from the DOE Office of Hearings and Appeals (OHA), "The Decision and Order indicates the DOE has determined that: "The information redacted from the eight documents was properly withheld under Exemption 2. However, Idaho did not provide an adequate determination with respect to Exemption 4. Therefore, we will grant the Appeal in part and remand the matter to Idaho for a further determination on the Exemption 4 withholding." ⁱ

Basically, OHA only approved release of some relatively unimportant "trade secrets or confidential", drawings while maintaining censorship of the more important documents sought by Environmental Defense Institute and Keep Yellowstone Nuclear Free in our Freedom of Information Act (FOIA) request that also included a copy of the current Advanced Test Reactor Safety Analysis.

In a April 9, 2009 DOE/ID Operations Summary: "It was determined that an existing Safety Analysis of the Advanced Test Reactor does not fully address the possibility that emergency cooling pumps at the reactor could be submerged before they are able to fulfill their safety function following a reactor shutdown in a particular accident scenario."

This means despite DOE's own internal reports that acknowledge Advanced Test Reactor (ATR) Safety Analysis Review deficiencies, DOE still censors the release of these reports to the public under FOIA. DOE contends that: "Release of the information at issue in the present case could allow terrorists or other malefactors to identify vulnerabilities of the ATR and to understand how to sabotage it. Accordingly, disclosure of the information at issue risks circumvention of DOE's efforts to comply with its statutory mandate to provide secure and safe stewardship of nuclear and other dangerous materials." This statement is uniquely ludicrous when (as documented above) the ATR Safety Analysis Review is deficient and yet the public is denied access to the information needed to characterize the hazards this 40-year old nuclear reactor poses to the entire region during an accident.

In a separate legal action in 2006, Keep Yellowstone

Nuclear Free (KYNF), Environmental Defense Institute (EDI) and David McCoy filed a lawsuit in Wyoming Federal District Court. "This is an action under FOIA seeking to enjoin DOE from improperly withholding or redacting documents requested by the Plaintiffs. The documents in question relate to the engineering and seismic safety of the Advanced Test Reactor (ATR) a nearly 40-year old nuclear reactor operated by the DOE at the Idaho National Laboratory." ⁱⁱ As of this writing nearly three years later, there has not been a final ruling on this lawsuit.

None-the-less DOE's new ATR Life Extension Plan will keep the ATR running to 2040 and beyond. Due to neglect, antiquated equipment, poor design, and many years of what DOE has termed "budget austerity," the ATR poses a threat to public health and safety. ⁱⁱⁱ

Also on March 19, 2009: "An operator at the Advanced Test Reactor discovered that an inflatable seal on the canal bulkhead at a [reactor] fuel storage facility was no longer maintaining required pressure because of an air leak. Spent fuel cask movements in the canal area affected by the failed seal were prohibited until the failed seal is repaired or modifications completed." Loss of coolant water (that also acts as a nuclear criticality moderator) in reactor fuel storage canal could result in a spontaneous criticality fire that is extremely difficult to extinguish especially it occurs during an earthquake or other reactor malfunction requiring limited water to other safety systems.

The only "security threat" in jeopardy here is DOE's credibility to safely operate the antiquated 40 year-old Advanced Test Reactor that is still operating long after its original 20-year design life. We do not want another Three-Mile-Island accident here in Idaho.

Nuclear Waste

Stephanie Cooke the author of the forthcoming "In Mortal Hands: A Cautionary History of the Nuclear Age" reports: "President Obama has made clean and efficient energy a top priority, and Congress has obliged with more than \$32 billion in stimulus money mostly for conservation and alternative energy technologies like wind, solar and biofuel. Sadly, the Energy Department is too weighed down by nuclear energy programs to devote itself to bringing about the revolution Mr. Obama envisions.

Today, the department's main task is managing the thousands of facilities involved in producing nuclear weapons during the cold war, and the associated cleanup of dozens of contaminated sites. Approximately two-thirds of its annual budget, which is roughly \$27 billion, is spent on these activities, while only 15 percent is allocated for all energy programs, including managing the Strategic Petroleum Reserve and researching and developing new technologies.

The department, after all, has nuclear weapons in its DNA. It is essentially an offshoot of the Atomic Energy Commission, a civilian-run agency established in 1946 to continue the work of the Manhattan Project and to investigate the possibility of developing civilian nuclear energy. In 1974, Congress voted to abolish the commission, turning over the weapons activities to a new Energy Research and Development Administration and setting up the Nuclear Regulatory Commission. The former was disbanded three years later and replaced by the Department of Energy.

Given the department's origins, it is not surprising that nuclear programs have won out over other energy technologies. Of the \$135.4 billion spent on energy research and development from 1948 to 2005 (in constant 2004 dollars), more than half, or \$74 billion, went to nuclear energy, while fossil-fuel programs received a quarter, or \$34.1 billion. The leftovers went for alternatives, with renewables getting \$13 billion, or 10 percent, and energy efficiency \$12 billion, according to a Congressional Research Service report written in 2006.

That historical pattern of spending continues to this day. This year nuclear energy research is receiving \$1.7 billion, including for a weapons-related fusion program being touted for its supposed energy potential. Nuclear weapons programs are getting \$6.4 billion, with an additional \$6.5 billion allocated to environmental cleanup. Millions more are spent on efforts to reduce the risk of weapons proliferation, and recovering nuclear and radioactive materials from around the world.

Against this background, alternative energy solutions are but an afterthought: in the current fiscal year, for example, all of \$1.1 billion is apportioned for programs falling under this category, not including the stimulus money.

The stimulus package, intended to be spent over two years, places huge demands on Secretary of Energy Steven Chu. But if Mr. Chu wishes to avoid getting dragged down by the nuclear undertow, the Energy Department must be relieved of duties that aren't related to energy.

In his Inaugural Address, President Obama said, "We will harness the sun and the winds and the soil to fuel our cars and run our factories." That is a hopeful image and a lofty aim, but it cannot happen until the Department of Energy is freed from the nuclear weapons establishment."

East Idaho Mayor Defends Trip to Paris Paid for by French Nuclear Company

The *Seattle Times* reports 3/19/09; "The mayor of this eastern Idaho city says he's doing nothing wrong by accepting a weeklong trip to Paris paid for by a French-owned nuclear services company that has proposed building a uranium enrichment plant near here.

In Idaho Falls, Idaho the mayor of this eastern Idaho city says he's doing nothing wrong by accepting a week-long trip to Paris paid for by a French-owned nuclear services company that has proposed building a uranium enrichment plant near here.

Mayor Jared Fuhriman said attorneys have looked at the trip and say he will not be breaking any laws. "We have turned every stone over," Fuhriman told the Post Register. He leaves Saturday on the trip paid for by Areva Inc. as a chaperone for 20 members of his Youth Advisory Council, whose members also are traveling on the company's dime.

Areva late last year applied to the U.S. Nuclear Regulatory Commission to build a \$2 billion uranium enrichment plant near Idaho Falls. The federal regulator has said approval could take more than two years. The company in 2008 won tax breaks from the Idaho Legislature before deciding to build the plant in eastern Idaho. Fuhriman was one of many who lobbied Idaho lawmakers to cap Areva's property taxes to entice the company to build the plant.

Areva said the project will create 800 construction jobs and 300 full-time workers, once it's running, with full-time jobs averaging up to \$70,000 annually. Fuhriman said decisions on the plant involve Bonneville County, not his office, and so there is no conflict of interest.

Areva also defended the trip. "We think we've been open about it," said Bob Poyser, vice president of Areva's Idaho Falls operation. "We've got nothing to hide here." While in France, Fuhriman said he plans to look over a plant similar to the one that's been proposed in Idaho.

All three Bonneville County commissioners, who could end up voting on Areva's plans, said they would not accept the trip paid for by Areva. Sen. Kate Kelly, D-Boise, said public officials should avoid any appearance of impropriety. "In this business, appearances count for a lot," Kelly said."

Editors note; On March 24, The Nuclear Regulatory Commission accepted for formal review an application by Areva Enrichment Services LLC for a license to construct and operate a centrifuge uranium enrichment plant in Bonneville County, Idaho, and has made the application available on the agency's Web site for public review. <http://www.nrc.gov>

People Died at Three Mile Island

Harvey Wasserman reports 3/24/09; "People died - and are still dying - at Three Mile Island. As the thirtieth anniversary of America's most infamous industrial accident approaches, we mourn the deaths that accompanied the biggest string of lies ever told in US industrial history.

As news of the accident poured into the global media, the public was assured there were no radiation releases. That quickly proved to be false. The public was then told the releases were controlled and done purposely to alleviate pressure on the core.

Both those assertions were false. The public was told the releases were "insignificant."

But stack monitors were saturated and unusable, and the Nuclear Regulatory Commission later told Congress it did not know---and STILL does not know---how much radiation was released at Three Mile Island, or where it went.

Using unsubstantiated estimates of how much radiation was released, the government issued average doses allegedly received by people in the region, which it assured the public were safe. But the estimates were utterly meaningless, among other things ignoring the likelihood that high doses of concentrated fallout could come down heavily on specific areas.

Official estimates said a uniform dose to all persons in the region was equivalent to a single chest x-ray. But pregnant women are no longer x-rayed because it has long been known a single dose can do catastrophic damage to an embryo or fetus in utero.

The public was told there was no melting of fuel inside the core. But robotic cameras later showed a very substantial portion of the fuel did melt. The public was told there was no danger of an explosion.

But there was, as there had been at Michigan's Fermi reactor in 1966. In 1986, Chernobyl Unit Four did explode. The public was told there was no need to evacuate anyone from the area.

But Pennsylvania Governor Richard Thornburgh then evacuated pregnant women and small children. Unfortunately, many were sent to nearby Hershey, which was showered with fallout.

In fact, the entire region should have been immediately evacuated. It is standard wisdom in the health physics community that---due in part to the extreme vulnerability of human embryos, fetuses and small children, as well as the weaknesses of old age---there is no safe dose of radiation, and none will ever be found.

The public was assured the government would follow up with meticulous studies of the health impacts of the accident.

In fact, the state of Pennsylvania hid the health impacts, including deletion of cancers from the public record, aboli-

tion of the state's tumor registry, misrepresentation of the impacts it could not hide (including an apparent tripling of the infant death rate in nearby Harrisburg) and much more.

The federal government did nothing to track the health histories of the region's residents. In fact, the most reliable studies were conducted by local residents like Jane Lee and Mary Osborne, who went door-to-door in neighborhoods where the fallout was thought to be worst. Their surveys showed very substantial plagues of cancer, leukemia, birth defects, respiratory problems, hair loss, rashes, lesions and much more.

A study by Columbia University claimed there were no significant health impacts, but its data by some interpretations points in the opposite direction. Investigations by epidemiologist Dr. Stephen Wing of the University of North Carolina, and others, led Wing to warn that the official studies on the health impacts of the accident suffered from "logical and methodological problems." Studies by Wing and by Arnie Gundersen, a former nuclear industry official, being announced this week at Harrisburg, significantly challenge official pronouncements on both radiation releases and health impacts.

Gundersen, a leading technical expert on nuclear engineering, says: "When I correctly interpreted the containment pressure spike and the doses measured in the environment after the TMI accident, I proved that TMI's releases were about one hundred times higher than the industry and the NRC claim, in part because the containment leaked. This new data supports the epidemiology of Dr. Steve Wing and proves that there really were injuries from the accident. New reactor designs are also effected, as the NRC is using its low assumed release rates to justify decreases in emergency planning and containment design."

Data unearthed by radiologist Dr. Ernest Sternglass of the University of Pittsburgh, and statisticians Jay Gould (now deceased) and Joe Mangano of New York have led to strong assertions of major public health impacts. On-going work by Sternglass and Mangano clearly indicates that "normal" reactor radiation releases of far less magnitude that those at TMI continue to have catastrophic impacts on local populations.

Anecdotal evidence among the local human population has been devastating. Large numbers of central Pennsylvanians suffered skin sores and lesions that erupted while they were out of doors as the fallout rained down on them. Many quickly developed large, visible tumors, breathing problems, and a metallic taste in their mouths that matched that experienced by some of the men who dropped the bomb on Hiroshima, and who were exposed to nuclear tests in the south Pacific and Nevada.

A series of interviews conducted by Robbie Leppzer and compiled in a "a two-hour public radio documentary *Voices from Three Mile Island* * give some indication of the horrors experienced by the people of central Pennsyl-

vania. They are further underscored by harrowing broadcasts from then-CBS News anchor Walter Cronkite warning that "the world has never known a day quite like today. It faced the considerable uncertainties and dangers of the worst nuclear power plant accident of the atomic age. And the horror tonight is that it could get much worse."

In March of 1980, I went into the region and compiled a range of interviews clearly indicating widespread health damage done by radiation from the accident. The survey led to the book *Killing Our Own*, co-authored with Norman Solomon, Robert Alvarez and Eleanor Walters * which correlated the damage done at TMI with that suffered during nuclear bomb tests, atomic weapons production, misuse of medical x-rays, the painting of radium watch dials, uranium mining and milling, radioactive fuel production, failed attempts at waste disposal, and more.

My research at TMI also uncovered a plague of death and disease among the area's wild animals and farm livestock. Entire bee hives expired immediately after the accident, along with a disappearance of birds, many of whom were found scattered dead on the ground. A rash of malformed pets were born and stillborn, including kittens that could not walk and a dog with no eyes. Reproductive rates among the region's cows and horses plummeted.

Much of this was documented by a three-person investigative team from the Baltimore News-American, which made it clear that the problems could only have been caused by radiation. Statistics from Pennsylvania's Department of Agriculture confirmed the plague, but the state denied its existence, and said that if it did exist, it could not have been caused by TMI.

In the mid-1980s the citizens of the three counties surrounding Three Mile Island voted by a margin of 3:1 to permanently retire TMI Unit One, which had been shut when Unit Two melted. The Reagan Administration trashed the vote and re-opened the reactor, which still operates. Its owners now seek a license renewal.

Some 2400 area residents have long-since filed a class action lawsuit demanding compensation for the plague of death and disease visited upon their families. In the past quarter-century they have been denied access to the federal court system, which claims there was not enough radiation released to do such harm. TMI's owners did quietly pay out millions in damages to area residents whose children were born with genetic damage, among other things. The payments came in exchange for silence among those receiving them.

But for all the global attention focused on the accident and its health effects, there has never been a binding public trial to test the assertion by thousands of conservative central Pennsylvanians that radiation from TMI destroyed their lives.

So while the nuclear power industry continues to assert that "no one died at Three Mile Island," it refuses to allow

an open judicial hearing on the hundreds of cases still pending.

As the pushers of the "nuclear renaissance" demand massive tax- and rate-payer subsidies to build yet another generation of reactors, they cynically stonewall the obvious death toll that continues to mount at the site of an accident that happened thirty years ago. The "see no evil" mantra continues to define all official approaches to the victims of this horrific disaster.

Ironically, like Chernobyl, Three Mile Island Unit Two was a state-of-the-art reactor. Its official opening came on December 28, 1978, and it melted exactly three months later. Had it operated longer, the accumulated radiation spewing from its core almost certainly would have been far greater.

Every reactor now operating in the US is much older---nearly all fully three decades older---than TMI-2 when it melted. Their potential fallout that could dwarf what came down in 1979.

But the Big Lie remains officially intact. Expect to hear all week that TMI was "a success story" because "no one was killed." But in mere moments that brand new reactor morphed from a \$900 million asset to a multi-billion-dollar liability. It could happen to any atomic power plant, now, tomorrow and into the future.

Meanwhile, the death toll from America's worst industrial catastrophe continues to rise. More than ever, it is shrouded in official lies and desecrated by a reactor-pushing "renaissance" hell-bent on repeating the nightmare on an even larger scale."

Raise doubts Over Nuclear Plant Safety: Startling Revelations About Three Mile Island (Nuclear) Disaster

Sue Sturgis reports 4/3/09 in *Facing South*: "It was April Fool's Day, 1979 -- 30 years ago this week -- when Randall Thompson first set foot inside the Three Mile Island nuclear power plant near Middletown, Pa. Just four days earlier, in the early morning hours of March 28, a relatively minor problem in the plant's Unit 2 reactor sparked a series of mishaps that led to the meltdown of almost half the uranium fuel and uncontrolled releases of radiation into the air and surrounding Susquehanna River.

It was the single worst disaster ever to befall the U.S. nuclear power industry, and Thompson was hired as a health physics technician to go inside the plant and find out how dangerous the situation was. He spent 28 days monitoring radiation releases.

Today, his story about what he witnessed at Three Mile Island is being brought to the public in detail for the first time -- and his version of what happened during that time,

supported by a growing body of other scientific evidence, contradicts the official U.S. government story that the Three Mile Island accident posed no threat to the public.

"What happened at TMI was a whole lot worse than what has been reported," Randall Thompson told Facing South. "Hundreds of times worse." Thompson and his wife, Joy, a nuclear health physicist who also worked at TMI in the disaster's aftermath, claim that what they witnessed there was a public health tragedy. The Thompsons also warn that the government's failure to acknowledge the full scope of the disaster is leading officials to underestimate the risks posed by a new generation of nuclear power plants.

While new reactor construction ground to a halt after the 1979 incident, state leaders and energy executives today are pushing for a nuclear energy revival that's centered in the South, where 12 of the 17 facilities seeking new reactors are located.

Fundamental to the industry's case for expansion is the claim that history proves nuclear power is clean and safe -- a claim on which the Thompsons and others, bolstered by startling new evidence, are casting doubt.

An unlikely critic

Randall Thompson could never be accused of being a knee-jerk anti-nuclear alarmist. A veteran of the U.S. Navy's nuclear submarine program, he is a self-described "nuclear geek" who after finishing military service jumped at the chance to work for commercial nuclear power companies.

He worked for a time at the Peach Bottom nuclear plant south of Three Mile Island in Pennsylvania's York County, but quit the industry six months before the TMI disaster over concerns that nuclear companies were cutting corners for higher profits, with potentially dangerous results. Instead, he began publishing a skateboarding magazine with his wife Joy.

But the moment the Thompsons heard about the TMI incident, they wanted to get inside the plant and see what was happening first-hand. That didn't prove difficult: Plant operator Metropolitan Edison's in-house health physics staff fled after the incident began, so responsibility for monitoring radioactive emissions went to a private contractor called Rad Services.

The company immediately hired Randall Thompson to serve as the health physics technician in charge of monitoring radioactive emissions, while Joy Thompson got a job monitoring radiation doses to TMI workers. "I had other health physicists from around the country calling me saying, 'Don't let it melt without me!'" Randall Thompson recalls. "It was exciting. Our attitude was, 'Sure I may get some cancer, but I can find out some cool stuff.'"

What the Thompsons say they found out during their time inside TMI suggests radiation releases from the plant were hundreds if not thousands of times higher than the

government and industry have acknowledged -- high enough to cause the acute health effects documented in people living near the plant but that have been dismissed by the industry and the government as impossible given official radiation dose estimates.

The Thompsons tried to draw attention to their findings and provide health information for people living near the plant, but what they say happened next reads like a John Grisham thriller. They tell of how a stranger approached Randall Thompson in a grocery store parking lot in late April 1979 and warned him his life was at risk, leading the family to flee Pennsylvania. How they ended up in New Mexico working on a book about their experiences with the help of Joy's brother Charles Busey, another nuclear Navy vet and a former worker at the Hatch nuclear power plant in Georgia. How one evening while driving home from the store Busey and Randall Thompson were run off the road, injuring Thompson and killing Busey. How a copy of the book manuscript they were working on was missing from the car's trunk after the accident. These allegations were detailed in several newspaper accounts in 1981.

Eventually, after a decade of having their lives ruled by TMI, the Thompsons decided to move on. Randall Thompson went to college to study computer science. Joy Thompson returned to publishing and writing. Today they live quietly in the mountains of North Carolina where, inspired by time spent seeking refuge with a traveling circus, they have forged a new career for themselves as clowns -- or what they like to call "professional fools." As Joy Thompson wrote in the fall 2001 issue of *Parabola of myth*, the role of the fool is to help people "perceive the foolishness in even ... the most powerful institutions," noting the medieval court jester's role of telling the King what others dare not.

That conviction has led the Thompsons to tell their story today. "They haven't told the truth yet about what happened at Three Mile Island," says Randall Thompson. "A lot of people have died because of this accident. A lot."

Anomalies abound - That a lot of people died because of what happened at Three Mile Island, as the Thompsons claim, is definitely not part of the official story. In fact, the commercial nuclear power industry and the government insist that despite the meltdown of almost half of the uranium fuel at TMI, there were only minimal releases of radiation to the environment that harmed no one.

For example, the Nuclear Energy Institute, the lobbying group for the U.S. nuclear industry, declares on its website that there have been "no public health or safety consequences from the TMI-2 accident." The government's position is the same, reflected in a fact sheet distributed today by the Nuclear Regulatory Commission, the federal agency charged with overseeing the U.S. nuclear power industry: TMI, it says, "led to no deaths or injuries to plant workers or members of the nearby community." The watchdog

group Three Mile Island Alert offers their take on the NRC factsheet.

Those upbeat claims are based on the findings of the Kemeny Commission assembled by President Jimmy Carter in April 1979 to investigate the TMI disaster. Using release figures presented by Metropolitan Edison and the NRC, the commission calculated that in the month following the disaster there were releases of up to 13 million curies of so-called "noble gases" -- considered relatively harmless -- but only 13 to 17 curies of iodine-131, a radioactive form of the element that at even moderate exposures causes thyroid cancer. A curie is a measure of radioactivity, with 1 curie equal to the activity of one gram of radium. For help understanding these and other terms, see the glossary at the end of this piece.)

But the official story that there were no health impacts from the disaster doesn't jibe with the experiences of people living near TMI. On the contrary, their stories suggest that area residents actually suffered exposure to levels of radiation high enough to cause acute effects -- far more than the industry and the government has acknowledged.

Some of their disturbing experiences were collected in the book *Three Mile Island: The People's Testament*, which is based on interviews with 250 area residents done between 1979 and 1988 by Katagiri Mitsuru and Aileen M. Smith.

It includes the story of Jean Trimmer, a farmer who lived in Lisburn, Pa. about 10 miles west of TMI. On the evening of March 30, 1979, Trimmer stepped outside on her front porch to fetch her cat when she was hit with a blast of heat and rain. Soon after, her skin became red and itchy as if badly sunburned, a condition known as erythema. About three weeks later, her hair turned white and began falling out. Not long after, she reported, her left kidney "just dried up and disappeared" -- an occurrence so strange that her case was presented to a symposium of doctors at the nearby Hershey Medical Center. All of those symptoms are consistent with high-dose radiation exposure.

There was also Bill Peters, an auto-body shop owner and a former justice of the peace who lived just a few miles west of the plant in Etters, Pa. The day after the disaster, he and his son -- who like most area residents were unaware of what was unfolding nearby -- were working in their garage with the doors open when they developed what they first thought was a bad sunburn. They also experienced burning in their throats and tasted what seemed to be metal in the air. That same metallic taste was reported by many local residents and is another symptom of radiation exposure, commonly reported in cancer patients receiving radiation therapy.

Peters soon developed diarrhea and nausea, blisters on his lips and inside his nose, and a burning feeling in his chest. Not long after, he had surgery for a damaged heart valve. When his family evacuated the area a few days later,

they left their four-year-old German shepherd in their garage with 200 pounds of dog chow, 50 gallons of water and a mattress. When they returned a week later, they found the dog dead on the mattress, his eyes burnt completely white. His food was untouched, and he had vomited water all over the garage. They also found four of their five cats dead -- their eyes also burnt white -- and one alive but blinded. Peters later found scores of wild bird carcasses scattered over their property.

Similar stories surfaced in *The People of Three Mile Island*, a book by documentary photographer Robert Del Tredici. He found local farmers whose cattle and goats died, suffered miscarriages and gave birth to deformed young after the incident; whose chickens developed respiratory problems and died; and whose fruit trees abruptly lost all their leaves. Local residents also collected evidence of deformed plants, some of which were examined by James Gunckel, a botanist and radiation expert with Brookhaven National Laboratory and Rutgers University. "There were a number of anomalies entirely comparable to those induced by ionizing radiation -- stem fasciations, growth stimulation, induction of extra vegetative buds and stem tumors," he swore in a 1984 affidavit. Scientists say these kinds of anomalies simply aren't explained by official radiation release estimates.

Evidence of harm:

The evidence that people, animals and plants near TMI were exposed to high levels of radiation in the 1979 disaster is not merely anecdotal. While government studies of the disaster as well as a number of independent researchers assert the incident caused no harm, other surveys and studies have also documented health effects that point to a high likelihood of significant radiation exposures.

In 1984, for example, psychologist Marjorie Aamodt and her engineer husband, Norman -- owners of an organic dairy farm east of Three Mile Island who got involved in a lawsuit seeking to stop TMI from restarting its Unit 1 reactor -- surveyed residents in three hilltop neighborhoods near the plant. Dozens of neighbors reported a metallic taste, nausea, vomiting and hair loss as well as illnesses including cancers, skin and reproductive problems, and collapsed organs -- all associated with radiation exposure. Among the 450 people surveyed, there were 19 cancer deaths reported between 1980 and 1984 -- more than seven times what would be expected statistically.

That survey came to the attention of the industry-financed TMI Public Health Fund, created in 1981 as part of a settlement for economic losses from the disaster. The fund's scientific advisors verified the Aamodts' calculations and launched a more comprehensive study of TMI-related cancer deaths led by a team of scientists from Columbia University. The researchers found an association between estimated radiation doses received by area residents and instances of non-Hodgkin's lymphoma, lung cancer, leu-

kemia and all cancers combined. Crucially, however, the researchers decided there wasn't "convincing evidence" that TMI radiation releases were linked to the increase in cancers in the area because of the "low estimates of radiation exposure." The paper did not consider what conclusions could be drawn if those "low estimates" turned out to be wrong.

By the time the Columbia research was published in the early 1990s, a class-action lawsuit was underway involving about 2,000 plaintiffs claiming that the radiation emissions were much larger than admitted by the government and industry. (The federal courts eventually rejected that suit, though hundreds of out-of-court settlements totaling millions of dollars have been reached with victims, including the parents of children born with birth defects.)

Consulting for the plaintiffs' attorneys, the Aamodts contacted Dr. Steven Wing, an epidemiologist at the University of North Carolina School of Public Health in Chapel Hill to provide support for the plaintiffs. Dr. Wing was reluctant to get involved because -- as he wrote in a 2003 paper about his experience -- "allegations of high radiation doses at TMI were considered by mainstream radiation scientists to be a product of radiation phobia or efforts to extort money from a blameless industry." But impressed with the Aamodts' compelling if imperfect evidence, Wing agreed to look at whether there were connections between radiation exposure from TMI and cancer rates.

Wing reanalyzed the Columbia scientists' data, looking at cancer rates before the TMI disaster to control for other possible risk factors in the 10-mile area. His peer-reviewed results, published in 1997, found positive relationships between accident dose estimates and rates of leukemia, lung cancer and all cancers. Where the Columbia study found a 30 percent average increase in lung cancer risk among one group of residents, for example, Wing found an 85 percent increase. And while the Columbia researchers found little or no increase in adult leukemias and a statistically unreliable increase in childhood cases, Wing found that people downwind during the most intense releases were eight to 10 times more likely on average than their neighbors to develop leukemia.

Dr. Wing reflected on his findings at a symposium in Harrisburg marking the 30-year anniversary of the Three Mile Island disaster last week. "I believe this is very good evidence that releases were thousands of times greater than the story we've been told," he said. "As we think about the current plans to open more nuclear reactors, when we hear -- which we hear often -- that no one was harmed at Three Mile Island, we really should question that."

Documenting discrepancies

Randall and Joy Thompson couldn't agree more. If anything, they think Dr. Wing's findings understate the impact of Three Mile Island because they're based on low-ball estimates of radiation releases. "Given what he was allowed

to know or could figure out, he did a slam-bang job of it," Joyce Thompson says.

In 1995, the Thompsons -- with the help of another health physics expert who was also hired to monitor radiation after the TMI disaster, David Bear (formerly Bloombaum) -- prepared a report analyzing the Kemeny Commission findings. Their research, which hasn't been covered by any major media, documents a series of inconsistencies and omissions in the government's account.

For example, the official story is that the TMI incident released only 13 to 17 curies of dangerous iodine into the outside environment, a tiny fraction of the 13 million curies of less dangerous radioactive gases officials say were released, primarily xenon. Such a number would seem small compared with, for example, the 1986 nuclear accident at Chernobyl, which released anywhere from 13 million to 40 million curies of iodine and is linked to 50,000 cases of thyroid cancer, according to World Health Organization estimates.

But the Thompsons and Bear point out that the commission's own Technical Assessment Task Force, in a separate volume, had concluded that iodine accounted for 8 to 12 percent of the total radioactive gases leaked from Three Mile Island. Conservatively assuming the 13 million curie figure was the *total* amount of radioactive gases released rather than just the xenon portion, and then using the Task Force's own 8 to 12 percent estimate of the proportion that was iodine, they point out that "the actual figure for Iodine release would be over 1 million curies" -- a much more substantial public health threat.

In another instance, the Kemeny Commission claimed that there were 7.5 million curies of iodine present in TMI's primary loop, the contained system that delivers cooling water to the reactor. But a laboratory analysis done on March 30 found a higher concentration of iodine in the reactor water, which would put the total amount of iodine present -- and which could potentially leak into the environment -- at 7.65 million curies.

"Thus, while the apparent difference between 7.5 and 7.65 seems inconsiderable at first glance," the Thompson/Bear report states, "this convenient rounding off served to 'lose' a hundred and fifty thousand curies of radioactive Iodine."

They also offer evidence of atmospheric releases of dangerously long-lived radioactive particles such as cesium and strontium -- releases denied by the Kemeny Commission but indicated in the Thompsons' own post-disaster monitoring and detailed in the report -- and show that there were pathways for the radiation to escape into the environment. They demonstrate that the plant's radiation filtration system was totally inadequate to handle the large amounts of radiation released from the melted fuel and suggest that the commission may have arbitrarily set release estimates at levels low enough to make the filtration

appear adequate.

Shockingly, they also report that when readings from the dosimeters used to monitor radiation doses to workers and the public were logged, doses of beta radiation -- one of three basic types along with alpha and gamma -- were simply not recorded, which Joy Thompson knew since she did the recording. But Thompson's monitoring equipment also indicated that beta radiation represented about 90 percent of the radiation to which TMI's neighbors were exposed in April 1979, which means an enormous part of the disaster's public health risk may have been wiped from the record.

Finally, in a separate analysis the Thompsons point to discrepancies in government and industry accounts of the disaster that suggest the TMI Unit 2 suffered a scram failure -- that is, a breakdown of the emergency shutoff system. That would mean the nuclear reaction spiraled out of control and therefore posed a much greater danger than the official story allows.

The Thompsons aren't the only ones who have produced evidence that the radiation releases from TMI were much higher than the official estimates. Arnie Gundersen -- a nuclear engineer and former nuclear industry executive turned whistle-blower -- has done his own analysis, which he shared for the first time at a symposium in Harrisburg. "I think the numbers on the NRC's website are off by a factor of 100 to 1,000," he said.

Exactly how much radiation was released is impossible to say, since onsite monitors immediately went **off the scale** after the explosion. But Gundersen points to an inside report by an NRC manager who himself estimated the release of about **36 million curies** -- almost three times as much as the NRC's official estimate. Gundersen also notes that industry itself has acknowledged there was a total of 10 billion curies of radiation inside the reactor containment. Using the common estimate that a tenth of it escaped, that means as much as a billion curies could have been released to the environment.

Gundersen also offered compelling evidence based on pressure monitoring data from the plant that shortly before 2 p.m. on March 28, 1979 there was a hydrogen explosion inside the TMI containment building that could have released significant amounts of radiation to the environment. The NRC and industry to this day deny there was an explosion, instead referring to what happened as a "hydrogen burn." But Gundersen noted that affidavits from four reactor operators confirm that the plant manager was aware of a dramatic pressure spike after which the internal pressure dropped to outside pressure; he also noted that the control room shook and doors were blown off hinges. In addition, Gundersen reported that while Metropolitan Edison would have known about the pressure spike immediately from monitoring equipment, it didn't notify the NRC about what had happened until two days later.

Gundersen maintains under the NRC's own rules an evacuation should have been ordered on the disaster's first day, when calculated radiation exposures in the town of Goldsboro, Pa. were as high as 10 rems an hour compared to an average cumulative annual background dose of about 0.125 rems. No evacuation order was ever issued, though Gov. Dick Thornburgh did issue an evacuation advisory on March 30 for pregnant women and preschool children within 5 miles of the plant. The government also did not distribute potassium iodide to the public, which would have protected people from the health-damaging effects of radioactive iodine.

Lessons for the future?

When asked by Facing South to respond to these allegations, a spokeswoman for the Nuclear Regulatory Commission did not address them directly, instead stating that it continues to stand by the Kemeny Commission report. The NRC further insists that the radiation releases from Three Mile Island had only "negligible effects" on the physical health of humans and the environment, citing other reports from federal agencies.

But Gundersen and the Thompsons argue such claims don't address new findings at odds with the government's account. "I believe [the] data shows releases from TMI were significantly greater than reported by the federal government," Gundersen says. They also say their findings that releases were potentially much larger have important ramifications for current plans to expand the nuclear power industry.

With more than \$18 billion in federal subsidies at stake, 17 companies are seeking federal licenses to build a total of 26 nuclear reactors across the country, the first applications since the 1979 disaster. The Atlanta-based Southern Co. plans to begin site work this summer for two new reactors at the Vogtle site in Georgia, where state lawmakers recently approved legislation forcing ratepayers to foot the bill for those facilities up front. Florida and South Carolina residents have also begun paying new utility charges to finance planned reactors. Plans are in the works as well for new reactors in Virginia, North Carolina, Alabama, Mississippi, Louisiana and Texas.

Harold Denton, a retired NRC official who worked in Three Mile Island during the crisis, recently told Greenwire that changes made after the 1979 disaster "significantly reduced the overall risks of a future serious accident." But the Thompsons and Gundersen point out that the standards the NRC is applying to the new generation of nuclear plants are influenced by assumptions about what happened at Three Mile Island. They say the NRC's low estimates of radiation exposure have resulted in inadequate requirements for safety and containment protocols as well as the size of the evacuation zones around nuclear plants.

Other nuclear watchdogs have also raised concerns that the NRC's standards for protection against severe accidents

like TMI remain inadequate. In a December 2007 report titled "Nuclear Power in a Warming World" the Union of Concerned Scientists notes that the worst accident the current generation of reactors was designed to withstand involves only partial melting of the reactor core but no breach of containment. And the NRC requires operators of plants found to be vulnerable to severe accidents to fix the problem "only if a cost-benefit analysis shows that the financial benefit of a safety backfit - determined by assigning a dollar value to the number of projected cancer deaths that would result from a severe accident - outweighs the cost of fixing the problem," the report states.

Given their personal experiences, the Thompsons warn that we may be fooling ourselves into believing nuclear power is safer than evidence and history suggest. "Once you realize how deep and broad the realignment of facts about TMI has been, it becomes really pretty amazing," Randall Thompson says. "I guess that's what it takes to protect this industry."

Senate Budget Revives 'Nuclear Pork'

Edward Felker reports in *The Washington Times* 4/9/09; "Nuclear energy advocates quietly slipped an extra \$50 billion for an Energy Department program into the Senate's budget blueprint last week, giving new life to a provision that had been rejected as "nuclear pork" in February's economic stimulus bill.

Without debate, explanation or a recorded vote, senators accepted an amendment by Sen. Michael D. Crapo, Idaho Republican, to boost the department's "low-carbon" energy loan construction guarantee program by \$50 billion over five years. The program would make it easier for the nuclear power industry to secure financing for plants, including the more than two dozen that are now pending.

The amendment is another challenge by the Democrat-led Senate to President Obama, whose energy policies have been antagonistic toward nuclear power. Part of a cluster of 15 changes proposed Thursday night at the tail end of the budget debate, the provision was offered on the Senate floor by Budget Committee Chairman Kent Conrad, North Dakota Democrat.

The same proposal was stripped from the stimulus bill after a leading environmental group, Friends of the Earth, called it a bailout for the nuclear power industry. At the time, the group ran ads attacking the sponsorship by Sen. Robert F. Bennett, Utah Republican, and called on Senate Appropriations Committee Chairman Daniel K. Inouye, Hawaii Democrat, and Senate Majority Leader Harry Reid, Nevada Democrat, to spurn the provision.

A spokesman for Mr. Crapo said the senator backed the amendment as a way to expand nuclear energy but noted that the Energy Department guarantee program, created in

2005, targets several so-called "clean energy" programs and does not favor nuclear power over other sources.

The program is designed to use taxpayer money only if utilities default on their loans. Still, the Congressional Budget Office estimates that the cost of the plan will be roughly \$500 million over five years. Large defaults could push the price tag much higher, even though borrowers would have to pay fees to the federal government to obtain the loan guarantees and thus defray taxpayer costs. The loan guarantee amendment was stripped from the stimulus bill in February at the insistence of House leaders. Its re-emergence in the Senate, as a nonbinding rider to the budget, is seen as a first step to inclusion in legislation later this year.

Mr. Crapo is one of several senators eager to expand the loan program. Sen. Byron L. Dorgan, North Dakota Democrat, and Sen. George V. Voinovich, Ohio Republican, included the measure in an energy proposal they announced last week.

In the 2007-08 election cycle, electric utilities represented Mr. Dorgan's top contributor among industry sectors. Utility company political action committees and individuals associated with utility companies gave his campaign \$181,326, according to the Center for Responsive Politics. Mr. Crapo, a member of the Senate Budget Committee, received \$87,004 from utilities executives and PACs, the sixth-largest among his industry sector donors.

The loan guarantee program was created to insure up to \$38.5 billion in loans to 10 types of low-emissions energy projects, including "advanced nuclear energy projects," which refers to next-generation nuclear power plants.

The nuclear industry has strongly supported federal loan guarantees to help it win financing for new nuclear plants, which can cost more than \$10 billion for a single, moderate-sized 1,000-megawatt plant. The Energy Department's current loan guarantee authority includes \$18.5 billion for nuclear financing.

Kevin Book, an industry analyst and consultant who has testified before Congress on the guarantee program, said climate and energy legislation headed for approval in Congress this year likely will include some kind of financing assistance for nuclear power but isn't likely to meet the industry's request. "Do I think they're going to get \$50 billion? No," he said.

Endnotes:

ⁱ Poli A. Marmolejos, Director Office of Hearings and Appeals, 3/25/09 letter to Chuck Broscious, RE: Case No. TFA-0298.

ⁱⁱ Keep Yellowstone Nuclear Free, Environmental Defense Institute, et al., v. DOE, Complaint, Wyoming Federal District Court, Case No. 06-CV-205-D

ⁱⁱⁱ KYNF v. DOE, Idaho Federal District Court, Civ. No. 07-36-E-BLW, Complaint, page 2.