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January 23, 2006

(65)

L. Vietti-Cook, Secretary
US Nuclear Regulatory Commission
Washington, DC 20555-0001

ATTN: Rulemakings and
Adjudications Staff
SECY@nrc.gov.

Re: RIN 3150-AH60

The following comments are being submitted regarding the proposed amendments to the Nuclear Regulatory Commission regulations that govern the security requirements relating to the Design Basis Threat of *radiological sabotage* and of the *theft or diversion* of Strategic Special Nuclear Material at nuclear power plants and Category I uranium/plutonium fuel cycle facilities.

As an introduction, I would like to list some of my reasons for believing that America's continued reliance on nuclear power is simply not acceptable.

1. Because of the presence of an immense quantity of radioactive material, nuclear power has always been a dangerous way to generate electricity. Now, in addition, the world is rife with terrorists and political extremists linked through the internet. No mere NRC regulatory guides can be sufficiently brilliant, prescient, and flexible to protect our communities --- urban and rural --- from the clever, intense, suicidal haters determined to attack one or more of our aging nuclear power plants. These 103 nuclear reactors ("fixed sites") are sitting targets.

2. Plutonium is what atom bombs are made of. Every thousand-megawatt nuclear power reactor produces enough plutonium to make at least *forty* nuclear bombs *every year.* Every year. If a nuclear reactor operates for the entire sixty-year duration the NRC is now promoting, that would mean the potential for some 2400 bombs, or more, from a single reactor.

3. Plutonium-239 has a half-life of 24,100 years. That means the plutonium-239 produced at the Indian Point power plant, for example -- thirty miles from Times Square in New York City – will still be generating hazardous radioactive particles and rays 241,000 years from now (ten half-lives).

Plutonium is a terrorist's ideal trophy because of its bomb-making potential. It is also a biological threat because of its notorious toxicity. For example, it has been known for decades that a dose of less than a microgram (one millionth of a gram) of plutonium-239 per gram of tissue has caused cancer in beagle dogs. (William J. Bair, of Battelle-Pacific Northwest Laboratories: "The Biological Effects of Transuranium Elements in Experimental Animals," published in the AEC's WASH-1359, December 1974, at p.171.) A typical 1000-MWe reactor generates approximately 293,000 grams of plutonium every year.

4. No location has been found on the planet where radioactive waste can be isolated from living creatures for the requisite millennia. Even if we found a permanent disposal site in the U.S. where today's radioactive waste could be buried, how could that radioactive material possibly be

transported safely to its resting place? Would the highways, railways and riverways have to become armed camps in order to keep terrorists from attacking the transport vehicles with high-energy density devices (HEDDs) or other rockets or explosives?

What would happen to the radioactively contaminated victims who would survive a transport accident involving a hot, long-duration fire of a fuel rod cask en route to wherever? Wouldn't the victims contaminate the other patients at a hospital, and the doctors and other staff members?

5. Reactor fuel rods contain not only plutonium, but other permanent toxins, as well. For example, technetium-99, with a half-life of 211,000 years. In 1978 Oak Ridge National Laboratory published a report entitled "Assessment of Technetium-99 Releases to the Atmosphere -- A Plea for Applied Research." (J.E.Till was principal author.)

Here are additional reasons for strengthening the regulations needed to provide protection against terrorist activity. And additional comments.

a. The proposed amendments to Part 73 that were allegedly designed to upgrade the Design Basis Threat are inadequate and disturbing. The NRC should not continue to defer the issuance of a mandate for its power plant licensees and Category I fuel cycle facilities to provide protection against the threat of an air attack. Such facilities should also be required to prove that a system is in place to protect against a potential attack by a minimum of 19 outside attackers (the number deployed on 9/11) plus a possible cadre of insider employees, all of whom could be equipped with modern weaponry (including plastic explosives not readily detected by on-site monitors).

b. I am not able to determine if reactor-fuel *reprocessing* plants would be granted continued exemption from various security requirements, or not. (1) According to the Federal Register, Vol. 70 – November 7, 2005, at p. 67382, reprocessing plants are specifically exempted; whereas, (2) According to 70 FR 676387, "Licensees subject to the provisions of Section 73.20 (except for fuel cycle licensees . . .) . . . are exempt." (emphasis added).

While I am not able to figure out this apparent contradiction, I certainly hope that reprocessing plants would be required to comply with any and all protections, as inadequate as they may be. Although, fortunately, no commercial reprocessing plant is currently operating in the U.S., of the eight stages in the uranium fuel cycle (mining, milling, conversion, enrichment, fuel rod fabrication, reactor, reprocessing, and waste disposal, plus transportation), I have long believed that -- next to the operation of the reactor -- the reprocessing of irradiated reactor fuel is the most dangerous and the dirtiest stage. The release of radioactive gases, liquids and solids from within the fuel rod cladding is massive, causing the contamination of workers and the environment.

As I understand reprocessing, the irradiated fuel rods are cut up and soaked in acid to remove the not-yet-fissioned plutonium and enriched uranium, the materials sought after for bombs. Why would terrorists not seek out a reprocessing plant?

c. People who live in the eastern and central portions of the United States --- *where all but eight of the 103 operating reactors are located* --- should not have to live in fear of a terrorist attack. Neither should people out west! Because of human error, design flaws, and equipment malfunctions, nuclear power plants can and do have accidents. (Perhaps you saw NBC's "West Wing" on January 22.)

But a terrorist attack would be a plan, not an accident. We have been warned that our U.S. nuclear power plants are among the prime candidates under consideration for a terrorist attack. We all must rely on the NRC to at least try to protect us from terrorists, whether they were to attack a nuclear power plant by land, water, or air; by persons employed within the facility, or by outsiders; or by some combination of the above.

d. As you know, a reactor vessel in an operating thousand-megawatt nuclear power plant contains the amount of long-lived radioactivity equivalent to approximately one-thousand Hiroshima bombs. And the spent fuel pool is crammed with additional quantities. The NRC therefore must be able to regulate or at least oversee the initial and follow-on screening of temporary and permanent workers who will have access to the reactor vessel, the spent fuel pool, and the related valves, generators, pumps, electrical systems, miles of piping, etc., that are required for the plant's operation and that are vulnerable as terrorist targets.

e. While making certain that individuals who apply to work at a nuclear power plant are sound of mind, intelligent, patriotic, and careful, a licensee's hiring practices must also respect Americans' currently abused rights to civil liberties and personal privacy. That balancing act is hard to perform.

I am reminded of one particularly defective screening and hiring regimen. In 1983 the NRC learned that a Ku Klux Klan leader had been working as a reactor operator at the now-decommissioned Zion nuclear power plant, about forty miles north of Chicago, for eight years. The operator was quoted as saying: "You know what my fantasy is? I want to walk into a Jewish hospital with a flame thrower and hose down every room." (Waukegan News-Sun, 12/1/83) The Zion worker had been entrusted with a job *in the control room* years before the tragedies of September 11, 2001. It is almost certain that neither he nor his stash of weapons and ammunition were associated with al Qaida.

To me this anecdotal information is just part of the proof that nuclear power plants are both too powerful and too vulnerable to be entrusted to mere mortals, with or without distorted, dangerous, personal goals.

After more than thirty years of reading about nuclear power plants and radioactive waste, and now specifically after reading of the NRC's efforts to try to protect nuclear facilities from the world's growing army of terrorists, I am afraid I believe more than ever that nuclear power plants constitute an unreasonable and unresolvable risk to public health and safety, and to the common defense and security of our nation. When will some brave political leader or NRC official admit that?

f, I would like to add my appreciation to Daniel Hirsch, president of the Committee to Bridge the Gap, for working more than 25 years to encourage the NRC to address the realities of the increasingly sophisticated and powerful threat environment. The history of CBG's efforts and the short-sighted denials of the NRC, the Atomic Safety and Licensing Board, and the Appeal Board are outlined, as you know, in CBG's Petition for Rulemaking to upgrade the "Design Basis Threat" (PM-73-12), as submitted to the NRC on July 23, 2004. CBG requested amendments that would reflect, at the least, the need to repel potential levels of attack equivalent to those masterminded by the sophisticated, coordinated, and tragically effective teams of 9/11 suicidal attackers.

The NRC has for too long refused to acknowledge and "encompass the magnitude of threat we now know exists --- attacking groups of a score or more, in multiple coordinated teams; planning for years, even to the extent of learning to fly jumbo jets; willingness to die and to take massive casualties along with them; ability to use creative techniques and significant technological assets (again, such as planes); and so on." (CBG, p. 20)

And, related to earlier CBG efforts to stimulate more careful NRC surveillance, I would like to remind the NRC that at least one of its Part 73.60 research reactors (at the University of Missouri in Columbia, the largest reactor at any U.S. university) continues to use highly-enriched uranium, contrary to NRC regulations. Bomb-grade uranium on campus.

Many of my comments may be philosophical, rather than specific to the NRC's amendments to the security requirements being proposed for the physical and cyber operation of licensed power reactors and Category I fuel cycle facilities. One reason I cannot be more specific is that significant portions of the proposed amendments to 10 CFR Part 73 are being withheld from public scrutiny and, therefore, are outside the scope of this public comment opportunity.

The last order for a U.S. nuclear power plant that was not subsequently cancelled was placed in October 1973 (Palo Verde, in Arizona). I urge the NRC to spend its energy and talents to try to protect the nation's operating and decommissioned nuclear facilities from terrorists, human error, and acts of extreme weather, and not to promote the creation of new nuclear reactors.

I further urge the NRC to aggressively amend 10 CFR 73 regulations to require its licensees to provide physical, cyber and intellectual protections --- to the extent possible --- against terrorist strikes by inside and/or outside attackers in teams or as individuals, approaching from the air, land or water; the malevolent use of vehicles; sophisticated weapons; and more. Complete protection, of course, may not yet be technologically or humanly possible, but I believe the NRC is legally responsible at least to try.

Sincerely,

Kay Drey

From: Kay Drey <tritium3@sbcglobal.net>
To: <SECY@nrc.gov>
Date: Tue, Jan 24, 2006 2:15 AM
Subject: RIN 3150-AH60

To the Secretary
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Washington, DC 20555-001
ATTN: Rulemakings and Adjudications Staff

Attached please find my comments regarding the Design Basis Threat proposed rule, 10 CFR Part 73.

Sincerely, Kay Drey
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