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**INDIAN POINT  
SAFE ENERGY COALITION**

Riverkeeper, Inc.  
PO Box 130  
Garrison, NY 10524

Indian Point Safe Energy Coalition  
PO Box 134  
Croton-on-Hudson, NY 10520

January 24, 2005

Secretary  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

**RE: Comments on PRM-73-12 Petition for Rulemaking: "Upgrading the Design Basis Threat Regulations for Protection Against Terrorist Attacks on Nuclear Reactors"**

Dear Sir/Madame:

Herewith Riverkeeper and the Indian Point Safe Energy Coalition submit comments regarding the PRM-73-12 Petition for Rulemaking: "Upgrading the Design Basis Threat Regulations for Protection Against Terrorist Attacks on Nuclear" filed on July 23, 2004, by the Committee to Bridge the Gap (CBG) as posted in the *Federal Register* on November 08, 2004, Volume 69, Number 215.

Thank you for receiving our comments on the need to upgrade the Design Basis Threat regulations at nuclear power plants

Sincerely,

Alex Matthiessen  
Hudson Riverkeeper &  
Executive Director

Mark Jacobs  
Indian Point Safe Energy Coalition Spokesman

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## INDIAN POINT SAFE ENERGY COALITION

### COMMENTS ON PRM-73-12 PETITION FOR RULEMAKING

The terrorist attacks of September 11, 2001 brought a new level of risk to the New York metropolitan region. Specifically, the Indian Point nuclear power plant, located 24 miles north of New York City, has heightened the concerns of elected officials, non-governmental groups (NGO's), and citizens, as well as several workers and security guards at Indian Point.

Even Entergy's own studies reflect the need to improve security at Indian Point. A January 2002 study commissioned by Entergy reported, "only 19 percent of the security officers stated that they could adequately defend the plant after the terrorist event of Sept. 11. Some officers believe that as many as 50 percent of the force may not be physically able to meet the demands of defending the plant . . . The current physical agility test is extremely lax and is not adequate to evaluate the actual physical conditioning of the security force."<sup>1</sup>

The September 2003 report by the General Accounting Office (GAO), "Nuclear Regulatory Commission: Oversight of Security at Commercial Nuclear Power Plants Needs to Be Strengthened,"<sup>2</sup> identifies the need to bolster nuclear plant security. The report found:

- federal inspections and security exercises at commercial nuclear power plants often overstate the level of protection and reduce the likelihood of security improvements;
- the NRC's inspection reports failed to include incidents such as a guard found sleeping or falsification of security logs as security violations; and
- attack exercises that are supposed to test a plant's ability to detect and repel a mock terrorist assault often are staged in such a way as to provide false assurances about a facility's security.<sup>3</sup>

<sup>1</sup> As reported in *The New York Times*, "Report Finds Security Flaws at Indian Point," by Richard Pérez-Pena (December 8, 2002). The article can be viewed at: <http://www.nci.org/02NCI/12/nyt-08.htm>

<sup>2</sup> <http://www.gao.gov/new.items/d03752.pdf>

<sup>3</sup> According to a September 28, 2003 *New York Times* article by Matt Wald ("Nuclear Regulatory Agency Lax on Reactor Security, Congressional Audit Finds"), people with knowledge of the audit confirmed that the incident involving a guard sleeping on duty occurred at Indian Point 2. Wald reported that "when two Nuclear Regulatory Commission officials found a security guard asleep at his post at the Indian Point 2 nuclear reactor last year, the agency decided not to issue a notice of violation because *there was no terrorist attack on the plant during the half-hour or so that the guard was sleeping.*" The GAO auditors said that nationwide, the NRC tended not to issue formal citations and was more inclined to minimize the significance of problems it found if the problems did not cause actual damage. Commission inspectors treated the Indian Point incident as a "non-cited violation," because it did not affect plant security, according to a report issued by the commission that describes an inspection at the plant. The report also says the commission did not treat the incident more seriously because no single guard had been found sleeping "more than twice during the past year." [Emphasis Added]

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The 9/11 Commission and its witnesses divulged on June 16, 2004 that additional air-based terrorist attacks have already been attempted, that more major attacks are likely in the near future, and that nuclear power plants are top al Qaeda targets. *The 9/11 Commission Report*, released in late July 2004, revealed that Mohammed Atta, the plot's ringleader who piloted one of the planes that hit the World Trade Center, "considered targeting a nuclear facility he had seen during familiarization flights near New York." Given that the reconnaissance flight paths used by the terrorists included the Hudson River corridor and that the next closest nuclear facility to New York City is over 70 miles away, the plant in question was almost certainly Indian Point. Equally troubling is the fact that the Indian Point plant has been plagued by numerous security lapses since 9/11, and the NRC has not required plants to "harden" vulnerable components of their infrastructure, in particular the spent fuel storage system.

While Riverkeeper and the Indian Point Safe Energy Coalition (IPSEC) are leading a campaign to permanently close the two reactors due, among other issues, to the lack of a workable emergency plan, safety concerns, and security concerns, we have been advocating for the implementation of increased security measures that will provide interim and permanent solutions to securing the Indian Point nuclear facility from possible terrorist attacks and saboteurs.

The following is a list of security recommendations that Riverkeeper and the Indian Point Safe Energy Coalition call on the U.S. Nuclear Regulatory Commission to implement in order to ensure a robust, secure nuclear power plant facility in this post-9/11 world. In addition, we call on the U.S. Nuclear Regulatory Commission to increase and upgrade the Design Basis Threat (DBT) in order to reflect the realities of 21<sup>st</sup> century terrorist threats.

### **I. Upgrading Security Measures at Indian Point**

- A. Harden Spent Fuel Storage Systems:** Indian Point's irradiated ("spent") fuel stockpile must be better safeguarded. The current pool storage system, which holds over 1600 tons of spent fuel, and the proposed dry storage cask installation are grossly inadequate to protect public and worker health and safety. We propose instead Hardened Onsite Storage (HOSS)<sup>4</sup> system, designed to contain and isolate radiation and repel terrorist attacks. HOSS can substantially diminish the risks associated with irradiated waste fuel storage by separating it into small batches, thereby eliminating the danger of one of the worst possible nuclear disasters – a fuel pool fire. HOSS is only intended as an interim measure until a suitable off-site repository is designed.

HOSS would involve the following:

- **The irradiated fuel older than five years – which represents much of the fuel in the pools – should be placed in robust dry storage casks.** Stored in hardened casks and dispersed and shielded appropriately, the irradiated fuel is less vulnerable to an irradiated fuel fire triggered by accident, sabotage or terrorist attack.
- **The remaining irradiated fuel assemblies in the pool should be reconfigured so that the density is reduced and there is more space in between each assembly.** The current spacing between fuel assemblies in the pool is dangerously close, which increases the probability of an irradiated fuel fire. It also increases the likelihood that the fire would engulf more fuel and release greater amounts of radioactivity.

<sup>4</sup> Concept conceived by Dr. Arjun Makhijani, President of the Institute for Energy and Environmental Research.

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- **Containment buildings, above-ground bunkers or berms should be used to shield the dry storage casks from line-of-sight** so that the casks are not vulnerable to acts of terrorism involving hand-held weaponry (i.e. anti-tank missiles) or airplanes. Entergy's recently approved proposal for dry cask storage will ultimately have 53 casks situated together – fully exposed – on a concrete pad, with an additional 20 casks added to the pad, in the event the NRC grants Entergy's request for a 20-year license renewal. With the casks stored in such a vulnerable manner, a terrorist attack involving a plane crash could destroy several casks and release radioactive material.<sup>5</sup>
  - **A robust, containment structure should be built over the irradiated fuel pools.** The buildings that currently house each irradiated fuel pool at Indian Point do not serve as containment, nor are they fortified structures capable of repelling a terrorist attack.
- B. Install Passive Defense Systems:** Different types of passive defense systems can be deployed at nuclear power plants such as:

### 1. Beamhenge

Beamhenge<sup>6</sup> should be installed at Indian Point in areas where postulated aerial attack impacts could result in damage to the reactor, spent fuel storage systems or other vulnerable targets like the steam lines running between the reactor and turbine buildings. Beamhenge is a line of steel beams set vertically in deep concrete foundations connected by bracing beams, a web of high-strength cables, wires, and netting linking the vertical beams to form a protective screen – the nuclear-grade equivalent of the fences erected around golf driving ranges.

Beamhenge would not need to completely encircle the nuclear plant - it would merely need to shield the vulnerable side or sides of the facility's key structures. Depending on the nuclear plant's geography and vulnerabilities, Beamhenge could be a single row of closely spaced beams or multiple rows of more widely spaced beams. The height of the beams and the length of the Beamhenge would depend on the configuration being protected from likely incoming trajectories.

The main purpose of Beamhenge would be to slow down an attack, fragment the attacking aircraft into smaller pieces, disperse the mass of jet fuel, and protect the more vulnerable spent fuel pools, and other structures located within the perimeter from being breached by the mass of the projectiles. The beams would tend to scatter the jet fuel and slow down other projectiles like the fuselage.

The structure would also provide some degree of protection against surface-to-surface and air-to-surface missiles, as well as other ballistic and self-propelled ordnance. The metal mesh netting strung between the vertical beams would not stop a projectile but would serve to trigger detonation of its warhead before it reached the facility's walls.

### 2. Earth Berms

Earth berms protect against attacks by rocket-propelled grenades, anti-tank missiles, aircraft attacks and many other possible scenarios. Berms can be used to protect various soft targets onsite

<sup>5</sup> Gordon Thompson, *Robust Storage of Spent Nuclear Fuel: A Neglected Issue of Homeland Security* by Institute for Resource and Security Studies. (January 2003)

<sup>6</sup> Source: The May/June issue of the *Bulletin of the Atomic Scientists* features an article on nuclear power plant security written by Dave Lochbaum, Ed Lyman and Daniel Hirsch. The article is entitled "THE NRC's DIRTY LITTLE SECRET: The Nuclear Regulatory Commission is still unwilling to respond to serious security problems." See sidebar article by Joel Hirsch, titled "Beamhenge." The article can be viewed at: <http://www.thebulletin.org/issues/2003/mj03/mj03hirsch.html#Anchor-Special-49575>

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- including the dry casks that house spent fuel.

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### 3. Dunlop Barriers

Dunlop barriers should be installed in the Hudson River around Indian Point's exclusion zone to help protect such vulnerable targets as the cooling intake structures. Dunlop Barriers are inflated cylinders of a rubber-coated textile and are linked either together or to a mooring buoy to form a security barrier around an exclusion zone.

- C. Establish Combat Air Patrols and No-Fly Zones:** A no-fly zone should be created above the Indian Point nuclear power plant. Commercial and private aircraft should be prohibited from flying within 10 nautical miles or below 18,000 feet above 100 sensitive sites around the nation, including Indian Point. This would apply to commercial planes, private planes and helicopters.

No-fly zones should be coupled with requiring the Department of Defense and the relevant departments to a) establish regular combat air patrols (CAP) over the Indian Point plant and b) conduct air intercept drills which include scenarios under which the potential target is Indian Point. These two measures have been called for by Senator Hillary Clinton.

The FBI and the Department of Homeland Security have warned government and industry officials to be on guard against Al Qaeda operatives hijacking cargo jets in Canada, Mexico or the Caribbean and then flying them into this country to attack nuclear plants and other critical infrastructure. A related concern is that, in some cases, foreign airports may not have the same level of security as that which exists at U.S. airports.

By the government's admission, there remains no air defense for Indian Point other than "improved security at our nation's airports" (which still has a long way to go). There are no specific measures in place that would protect Indian Point from an aerial assault either by a jumbo jetliner or a small plane coming from one of the region's poorly secured airports. A no-fly zone exists over Disney World and Disneyland but not over Indian Point. While a commercial airliner striking the containment domes could penetrate the domes and lead to a meltdown, an even more vulnerable target would be the spent fuel storage systems.

- D. Bolster Water-based Security:** Coast Guard and naval militia presence must be increased. They must be armed with the appropriate technology to thwart a water-based attack.
- E. Augment Security Forces:** The number of National Guard troops at Indian Point should be increased with a special focus on protecting the plant's more vulnerable targets such as the spent fuel storage systems.
- F. Maintain Highest Alert Status for Indian Point:** At all times, the Indian Point nuclear power plant should remain at the highest alert status.

## II. Upgrade the Design Basis Threat posed to Indian Point

One of the more imperative issues facing the Indian Point nuclear power plant is the appropriate Design Basis Threat (DBT) level for the facility in the post-September 11<sup>th</sup> world. The U.S. Nuclear Regulatory Commission's DBT defines the size and capability of potential attackers that nuclear power plant owners, like Entergy, must protect against. The DBT to Indian Point and other nuclear power plants has been set at a level far short of the actual threat level we face today, even after the NRC's recent DBT upgrade.

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The NRC's current DBT is wholly inadequate and must be revised in order to ensure that plant security will be able to thwart an assault by a substantial number of terrorists. For decades, many experts have advocated for a significantly upgraded DBT which would require protection against 20 outside attackers working in conjunction with one active insider. Today that recommendation seems logical since there were 19 terrorists involved in the highly coordinated, technologically advanced September 11 attacks. Indian Point should be required to be capable of defending against a highly coordinated, technologically advanced attack involving 20 attackers entering the site from multiple directions and working with one inside conspirator.

The intelligence community generally believes that terrorists would attack a target with a squad-sized force, which in the Army is 12 and the Navy is 14. Though the DBT is severely inadequate compared to what we now recognize as the threat, half the nuclear power plants could not even protect against the previous standard of three outside attackers working with one passive insider.

David Orrik, the head of the Operational Safeguards Response Evaluation (OSRE) program, testified before the House Commerce Committee on April 11, 2002 that in 46 percent of the force-on-force security tests: "the expert NRC team identified a significant weakness – significant being defined as the adversary team simulating sabotaging a target set, which would lead to core damage and in many cases, to a probable radioactive release. It is important to note that, even with adequate time for the plants to prepare and make themselves ready for the OSRE, that 46% still had a weakness in armed response." These statistics would be far worse if the DBT accurately represented the very real and sophisticated threat we are now facing.

**From:** Carol Gallagher  
**To:** Evangeline Ngbea  
**Date:** Mon, Jan 24, 2005 10:57 AM  
**Subject:** Comment letter on PRM-73-12

Attached for docketing is a comment letter on the above noted PRM from Alex Matthiessen of Hudson Riverkeeper, and Mark Jacobs of Indian Point Safe Energy Coalition, that I received via the Rulemaking website on 1/24/05.

Carol