

SUBCOMMITTEE ON NATIONAL SECURITY, EMERGING THREATS,  
AND INTERNATIONAL RELATIONS

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## MEMORANDUM

To: Members of the Subcommittee on National Security, Emerging Threats, and International Relations

From: Vincent Chase, Chief Investigator

Date: March 5, 2003

Subject: Briefing memorandum for the hearing entitled, *Emerging Threats: Assessing Public Safety and Security Measures at Nuclear Power Facilities*, scheduled for Monday, March 10th at 2:00 p.m., room 2154 Rayburn House Office Building.

## PURPOSE OF HEARING

The purpose of the hearing is to examine nuclear power facility security and emergency evacuation plans.

## HEARING ISSUE

**What is the status of Federal Emergency Management Agency (FEMA) and Nuclear Regulatory Commission (NRC) efforts to improve nuclear power facility security and develop and implement emergency preparedness plans?**

## **BACKGROUND**

### **Nuclear Facility Security**

Protecting America's critical infrastructure and key assets from terrorist threats is a critical mission for the Homeland Security Department (HSD) requiring cooperation, effective communication and adequate funding throughout all levels of government and private industry. This hearing will focus on security and emergency preparedness concerns associated with nuclear power facilities.

#### **(Attachment 1 and Web Resource 1)**

The USA Patriot Act<sup>1</sup> defines critical infrastructures as "those systems and assets, whether physical or virtual, so vital to the United States that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economy security, national public health or safety, or combination of those matters." **(Web Resource 2)**

Protecting America's infrastructure and key assets is a formidable challenge. The White House homeland security budget report, entitled *Securing the Homeland, Strengthening the Nation* identified nuclear facilities as among the nations highest risk targets. **(Web Resource 3)**

The Administration has begun a systematic effort to define, prioritize, and develop the country's first unified critical infrastructure protection plan, with involvement by all federal agencies as well as state and local governments and private industry. The Department of Homeland Security has organized the nations infrastructure into 13 Critical Infrastructure Sectors including:

- Agriculture
- Food
- Water
- Public Health
- Emergency Services
- Government

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<sup>1</sup> USA PATRIOT Act, P.L. 107-56

- Defense Industrial Base
- Information and Telecommunications
- Energy
- Transportation
- Banking and Finance
- Chemical Industry and Hazardous Materials
- Postal and Shipping

Nuclear power facilities are included as part of the Department of Homeland Security's (DHS) energy critical infrastructure sector. **(Web Resource 4)**

The Nuclear Regulatory Commission (NRC), an independent federal regulatory agency, is responsible for licensing and regulating nuclear power facilities and materials. The Atomic Energy Act of 1954<sup>2</sup>, and the Energy Reorganization Act of 1974<sup>3</sup> give NRC the responsibility for ensuring the safe and peaceful uses of nuclear energy. **(Web Resource 5)**

NRC responsibilities under these Acts include regulating licensees' (A) accounting systems for special nuclear and source materials, and (B) security programs and contingency plans for dealing with threats, thefts, and sabotage relating to special nuclear material, high-level radioactive wastes, nuclear facilities, and other radioactive materials and activities that the NRC regulates. Programs that promote the common defense and security and protect public health and safety by guarding against theft and sabotage are generally referred to as safeguards and security.

Primary responsibility for nuclear safety and regulatory compliance lies with nuclear utilities. The utilities are required to identify security problems and report them to the NRC. Nuclear facilities are required to protect against a specified level of threat (known as the Design Basis Threat or DBT) from outside attackers and inside conspirators using a specific set of weapons. **(Web Resource 6)**

Nuclear Regulatory Commission regulations require nuclear power plants to take adequate measures to protect the public from the possibility of exposure to radioactive release caused by acts of sabotage. These measures include:

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<sup>2</sup> 42 U.S.C. 2011 (Public Act 83-703)

<sup>3</sup> 42 U.S.C. 5801 (Public Act 93-438)

- the physical construction of the containment building for the reactor,
- security personnel, procedures, and surveillance equipment, and
- security clearance background checks and daily monitoring for plant employees. **(Web Resource 7)**

In February 2002, the NRC issued an order requiring utilities to make improvements in nuclear power facility security. These improvements included increases in the guard force, requirements that guards carry their primary weapons while on patrol, extending and fortifying security perimeters (the movement of truck bomb barriers farther from reactor targets), installing additional high-tech surveillance equipment, and strengthening coordination of security efforts with local, state and federal agencies. **(Attachment 2)**

### **Emergency Preparedness**

Emergency plans for nuclear power facilities are intended to protect public health and safety whenever plant accidents or acts of sabotage cause radiation to be released to the environment. Since the March 1979 accident at the Three Mile Island nuclear power plant in Pennsylvania, more attention has been focused on emergency preparedness.

Emergency preparedness has three goals: 1) to protect nuclear facility personnel; 2) to protect nuclear facility plant and equipment; 3) to protect the health and safety of the general public. An emergency plan and implementing procedures provide the basis for safeguarding the population and nuclear facility personnel.

FEMA is charged with the responsibility for developing and implementing plans and programs for disaster preparedness. To carry out this responsibility, FEMA has promulgated a number of regulations in conjunction with the NRC. In addition, in 1985 FEMA and the NRC put into place the Federal Radiological Emergency Response Plan (FRERP). The FRERP details the roles and responsibilities of a number of federal agencies in the event of an off-site (beyond the facility's boundaries) release of radiation from a nuclear power facility. **(Attachment 3)**

According to statutory requirements, prior to the issuance of a license for operation of any nuclear power facility, the NRC must determine that there exists a state, local, or utility plan which provides assurance that public health and safety are not endangered by the operation of the facility. The NRC and FEMA have entered into an agreement by which FEMA will review and assess these preparedness plans and present their findings to the NRC for use in the licensing process. To receive certification, each State having a nuclear facility must submit a preparedness plan, in conjunction with counties or local communities surrounding the facility, to FEMA for review. The preparedness plans submitted by State and local governments to FEMA must consider 16 emergency plan criteria, developed by the NRC. These criteria, promulgated by the NRC<sup>4</sup> as *Criteria for Preparation and Evaluation of Radiological Emergency Response Plans in Support of Nuclear Power Plants* have been adopted by FEMA<sup>5</sup> as the criteria to be used in evaluating the preparedness plans. **(Attachment 4)**

The 16 emergency plan criteria provide for both on-site and off-site safety and require that emergency plans be prepared to cover the population within a 10-mile radius of a nuclear power facility. In addition, state plans are required to address measures necessary to deal with the potential for the ingestion of radioactively contaminated foods and water out to a radius of 50 miles. The 10 mile and 50 mile radii are called emergency planning zones.

One criteria of particular note is number 14, which requires periodic exercises be conducted to evaluate preparedness plans. The NRC requires each local community or county in the emergency planning zone surrounding a nuclear facility to submit documentation outlining compliance with these regulations. This documentation is forwarded to FEMA by the state emergency management office.

When considering the preparedness plans, FEMA takes into account whether the plans adequately protect the public health and safety by providing reasonable assurance that appropriate protective measures can be taken offsite in the event of a radiological emergency. This test has become known as the “reasonable assurance” test.

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<sup>4</sup> 10 CFR Parts 50 (appendix E) and 70

<sup>5</sup> 44 CFR 350.5(a)

In 1996, the NRC and FEMA endorsed the prompt evacuation of the public within a two-mile radius and five-miles downwind of a facility, rather than sheltering the public in the event of a severe accident.

The NRC has established four emergency classification levels in order of increasing concern:

- *Unusual events* -- an extremely low-level emergency that poses no threat to public safety.
- *Alert*-a low -- level emergency that poses no threat to public safety but for which precautionary mobilization of certain emergency response functions is appropriate.
- *Site-area emergency* -- facility conditions degrade to a point where full activation of response functions is warranted.
- *General emergency* -- actual or imminent substantial degradation or melting of the reactor with the potential for a significant radioactive release to the environment beyond the facility's boundary. **(Attachment 5)**

FEMA generally implements radiological emergency programs through the states and relies on the state to communicate relevant information to local jurisdictions. FEMA and the affected state and local governments within the ten-mile emergency planning zone conduct exercises at least every 2 years at each nuclear power facility site. In addition, each state with a nuclear power plant must conduct an exercise at least every 6 years within the fifty-mile zone.

The purpose of these exercises is to test the integrated capabilities of state and local government agencies, utility personnel, and others to verify their ability to mobilize and respond if an accident or terrorist incident occurred. Before the exercises, FEMA and state officials involved in these exercises agree to the scenarios and the aspects of emergency preparedness that will be tested. In addition, NRC requires utilities to conduct exercises of the plant's on-site emergency preparedness plans. **(Web Resource 8)**

## **The James Lee Witt Draft Report**

In August 2002, New York Governor George Pataki commissioned an independent review of the Radiological Emergency Preparedness Plan at Indian Point Energy Center located in Westchester County, New York and for that portion of New York in proximity to Millstone Nuclear Plant in Waterford, Connecticut. The review was conducted by James Lee Witt Associates and looked at recent exercise results, public information efforts, current radiological emergency response plans, and data underlying the response plans, such as population data, evacuation time estimates, alert and notification system specifications, offsite accident impact analysis methodologies, and communication capabilities. **(Attachment 6)**

In a draft copy of the report released on January 10, 2003, Witt concluded there were significant deficiencies in the preparedness plans for Indian Point and Millstone.

Major draft report findings for Indian Point and Millstone (although their consequences were significantly less for Millstone) included planning inadequacies, expected parental behavior that would compromise school evacuations, difficulties in communications, outdated vulnerability assessment, lack of first responder confidence in the plan(s), problems caused by premature and voluntary departure of large numbers of people (spontaneous evacuation), the nature of the road system, the thin public education effort, and the cumulative impact of these issues on an effective response in a high density populated area.

Major draft report recommendations include, 1) improved procedures for public education and communication; 2) consideration of terrorist attacks; 3) improved communications with local governments by providing access to direct notification and information on current plant conditions and projections; 4) the plans need to address the issue of spontaneous evacuation beyond the 10 mile planning zone; and, 5) development of performance outcome-based emergency preparedness exercises and the involvement of the local communities in the development of the exercises.

## **Nuclear Accident Liability**

Liability for damages to the general public from nuclear accidents, sabotage, or terrorist attack is governed by the Price-Anderson Act.<sup>6</sup> Under Price-Anderson, the owners of commercial reactors must assume all liability for accident damages to the public. To pay any such damages, each licensed reactor must carry the maximum liability insurance available, which was raised effective January 1, 2003 to \$300 million. Any damages exceeding that amount are to be assessed equally against all operating commercial reactors, up to \$83.9 million per reactor. For each accident, the Price-Anderson liability system currently would be provide up to \$9.09 billion in public compensation. In January 2003, Congress extended the law until December 31, 2003. **(Attachment 1)**

## **DISCUSSION OF HEARING ISSUE (S)**

**What is the status of Federal Emergency Management Agency (FEMA) and Nuclear Regulatory Commission (NRC) efforts to improve nuclear power facility security and develop and implement emergency preparedness plans?**

### **Nuclear Facility Security**

Nuclear power facility security has been an ongoing issue, however concerns were considerably increased following the terrorist attacks on New York and Washington, D.C. in September 2001. **(Attachment 7)** The threat of terrorist attacks against nuclear power facilities has captured the attention of the public, the media and Congress. There is a perception that a successful attack could be devastating to large portions of the population. **(Attachment 8)**

The Nuclear energy industry believes nuclear power facilities are the most secure facilities in the U.S. industrial infrastructure and point to increased security measures implemented after September 11, 2001. In addition, the industry believes the NRC already imposes exacting security requirements and mandates security plans for each nuclear facility. **(Attachment 9)**

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<sup>6</sup> 42 U.S.C. 2011, Sec. 170 (Public Act 83-703)

However, others believe these measures fall short and create collateral problems. “Current regulations reportedly only require nuclear plants to prepare for an attack by three terrorists and one insider—a clearly inadequate scenario in light of the coordinated attack by 19 terrorist on September 11, 2001. In addition NRC regulations and emergency preparedness plans are lacking citing concerns regarding inadequate training of security personnel, lack of proper equipment and weapons, under-staffing requiring personnel to work 72 hours a week, and low compensation. **(Attachment 10)**

“The mindset of both the utilities and the NRC is far too compliance-oriented – rather than performance tested. Our security guards are regularly told that security upgrades are unnecessary because the utility is already in "compliance" with NRC regulations. In other words, if a checklist of requirements for detection, delay, and response is met – to include such items as a double-fence, alarms, a certain number of guards – the facility is deemed secure. However, performance tests repeatedly reveal that despite this "compliance" with requirements, physical security and the guard forces cannot stop terrorists from causing catastrophic damage to the reactor. This institutionalized bureaucratic complacency may be the biggest impediment to adequate security.”<sup>7</sup>

There have been numerous studies undertaken to determine the impact of breaches to a reactor core and /or nuclear material storage facility (spent fuel pool). It is clear and virtually indisputable that a successful attack against one or more of these components of a nuclear power facility would have serious national security implications. What remains far less certain is how the attacker would achieve this objective. **(Attachment 11)**

Nuclear reactors are obvious terrorist targets, but according to some they are very hard targets to hit and destroy. **(Attachment 12)** However, others will argue nuclear reactors and spent-fuel pools are vulnerable to attack. A successful attack on an operating reactor could release large amounts of short- and long-lived radioactive material into the atmosphere. Knowledgeable and determined attackers could achieve this result in a variety of ways including commando-style attacks,

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<sup>7</sup> Prepared Testimony of Danielle Brian, Executive Director, Project on Government Oversight (POGO) before the Senate Environment and Public Works Committee, June 5, 2002.

land-vehicle bomb, commercial aircraft and explosive-laden smaller aircraft.  
**(Attachment 13)**

### **Emergency Preparedness**

Local officials have also criticized emergency preparedness plans. Edward A. Diana, Orange County Executive in New York, stated, “Preparedness standards set by FEMA and practiced by the local teams rely too heavily on procedural compliance rather than the reality of an emergency. Real life events must be factored in when performing federally observed practice drills and exercises.”<sup>8</sup>

During emergency response exercises, which are conducted for each nuclear power plant site every two years, FEMA officials evaluate the ability of state and local emergency responders to implement radiological emergency response plans to protect the public health and safety of residents within the 10-mile emergency planning zone of the power plant. The exercise evaluates among other criteria functional communication equipment, effective control of traffic and access to evacuation routes, and timely public notification.

The peacetime opposition to nuclear power and recent terrorist attacks have created communities primed for fear. That in and of itself is a homeland security problem and a major potential vulnerability. Communities primed for panic may assume the worst-case scenario and overreact to a minor incident needlessly compounding the impact on public health and safety. **(Attachment 14)**

The Witt Report and others point out an attack on a nuclear power facility could result in a spontaneous evacuation that road systems could not accommodate and overwhelm local officials and first responders. In addition, questions have been raised regarding the adequacy of communication networks if first responders use different radio frequencies. These concerns about response capabilities and interoperability need to be addressed so that the emergency plans in place provide reasonable assurance that the health and safety of the people around the plants can be protected.

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<sup>8</sup> Prepared Testimony of Edward A. Diana, County Executive, Orange County, New York before the House Subcommittee on Economic Development, Public Buildings, and Emergency Management, February 25, 2003.

Public interest groups believe not much has changed to enhance security or emergency preparedness at nuclear power facilities since September 11, 2001. **(Web Resource 7)** However, others believe recent studies and exercises confirm that nuclear facilities are well defended and difficult for terrorist to penetrate. **(Attachment 12)**

### **Nuclear Accident Liability**

The Price-Anderson Act requires the nuclear energy industry to carry nuclear accident liability insurance up to a maximum of \$300 million. However, some are calling for changes in insurance coverage and the structure of the program. Specifically, some groups are recommending reactor owners should be required to guarantee payment of their nuclear accident insurance responsibilities under the Price-Anderson Act through surety bonds, letters of credit, sinking funds, or other comparable financial instruments that would not be discharged by bankruptcy. In addition, these groups are calling for legislative changes requiring holding corporations to be held fully responsible for the unmet liabilities incurred by both direct and indirect nuclear power plant-owning subsidiaries. **(Web Resource 10)**

## **ATTACHMENTS**

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2. *Fact Sheet on Nuclear Security Enhancements Since September 11, 2001*, U.S. Nuclear Regulatory Commission.
3. Federal Radiological Emergency Response Plan (FRERP), *Introduction and Background*, p. I-1-I-5, May 1996.
4. U.S. Nuclear Regulatory Commission Emergency Plans, 10 CFR 50.47.
5. The Nuclear Regulatory Commission's Emergency Action Levels and Conditions That Could Cause an Emergency, GAO Report # GAO-01-605, Pg. 23, July 2001.

6. *Review of Emergency Preparedness at Indian Point and Millstone* (Draft Report), Executive Summary, James Lee Witt Associates, January 10, 2003
7. *Defending the American Homeland: A Report of the Heritage Foundation Homeland Security Task Force*, The Heritage Foundation, L. Paul Bremer III and Edwin Meese III, January 2002.
8. *Nuclear Plant Security in Question*, Poughkeepsie Journal, Mary Beth Pfeiffer, October 18, 2001; *Indian Point Security Review Complete: FBI Report Finds IP Secure, Recommends Additional Steps*, The Putnam County News and Reporter, December 19, 2001; *Schumer, Clinton ask NRC to Look at Security*, Newsday, Jim Fitzgerald, December 10, 2002; *Safety Dance: How Secure are U.S. Nuclear Power Plants*, Grist Magazine, Shelly Smithson, March 26, 2002.
9. *Industry Supports Many Security Bill Provisions; Opposes Measures That Will Impede Progress*, Nuclear Energy Institute (NEI), February 2003.
10. *Nuclear Power Plant Security: Voices from Inside the Fences*, Project On Government Oversight (POGO), September 2002.
11. *Robust Storage of Spent Nuclear Fuel: A Neglected Issue of Homeland Security*, Table 1, Institute for Resource and Security Studies, Gordon Thompson, January 2003.
12. *Post-Sept. 11 Improvements in Nuclear Plant security Set U.S. Industry Standard*, Nuclear Energy Institute (NEI), February 2003.
13. *Robust Storage of Spent Nuclear Fuel: A Neglected Issue of Homeland Security*, Executive Summary, Institute for Resource and Security Studies, Gordon Thompson, January 2003.
14. Center for Strategic and International Studies (CSIS), Briefing Slide.

## WEB RESOURCES

1. *National Strategy for Homeland Security*,  
Office of Homeland Security, July 2002  
<<http://www.whitehouse.gov/homeland/book/index.html>>
2. *Terrorism: Section-by-Section Analysis of the USA PATRIOT Act*,  
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< <http://www.congress.gov/erp/rl/pdf/RL31200.pdf>>
3. *Securing the Homeland, Strengthening the Nation*,  
<[http://www.whitehouse.gov/homeland/homeland\\_security\\_book.html](http://www.whitehouse.gov/homeland/homeland_security_book.html)>
4. *Protecting the nation's Critical Infrastructure*,  
Department of Homeland Security (DHS)  
< <http://www.dhs.gov/dhspublic/display?theme=31&content=58>>
5. U.S. Nuclear Regulatory Commission (NRC)  
< <http://www.nrc.gov/>>
6. *Safety and Security: Plant Security: Physical Barriers, Armed Guards, Personnel Procedures*, Nuclear Energy Institute,  
<<http://www.nei.org/index.asp?catnum=2&catid=214>>
7. *Nuclear Power Plant Security: Voices from Inside the Fences*,  
Project on Government Oversight (POGO), September 12, 2002  
< <http://www.pogo.org/p/environment/eo-020901-nukepower.html>>
8. *NUCLEAR REGULATION: Progress Made in Emergency Preparedness at Indian Point 2, but Additional Improvements Needed*,  
GAO Report # GAO-01-605  
<<http://www.gao.gov/>>

9. *Review of Emergency Preparedness at Indian Point and Millstone (Draft Report)*, James Lee Witt Associates, January 10, 2003  
<<http://www.wittassociates.com/>>

10. *FINANCIAL INSECURITY: The Increasing Use of Limited Liability Companies and Multi-Tiered Holding Companies to Own Nuclear Power Plants*, Synapse Energy Economics, August 7, 2002.  
<<http://www.synapse-energy.com>>

## **WITNESS LIST**

### ***Panel One***

**Mr. W. Craig Conklin**

Technological Services Division  
Office of National Preparedness  
Emergency Preparedness and Response Directorate  
Department of Homeland Security

**Mr. Hubert Miller**

NRC Region I Administrator  
Nuclear Regulatory Commission

### ***Panel Two***

**The Honorable Richard Blumenthal**

Attorney General  
State of Connecticut

**Mr. John T. Wiltse, Director**

Office of Emergency Management  
State of Connecticut

**The Honorable Richard Bomd**

First Selectman  
Town of New Canaan

***Panel Three***

**Mr. Jim Wells**, Director  
Natural Resources and the Environment  
U.S. General Accounting Office

**Mr. Michael J. Slobodien**  
Director, Emergency Programs  
Entergy Nuclear Operations, Inc.

**Mr. William F. Renz**  
Director, Nuclear Protection Services and Emergency Preparedness  
Dominion Resources Services, Inc.

**Ms. Angela Howard**  
Senior Vice President  
Nuclear Energy Institute (NEI)

**Mr. Alex Matthiessen**  
Executive Director  
Riverkeeper

**Mr. David Lochbaum**  
Nuclear Safety Engineer  
Union of Concern Scientists