



**Union of  
Concerned  
Scientists**

Citizens and Scientists for Environmental Solutions

PRM-50-83

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USNRC

February 23, 2007

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Annette L. Vietti-Cook  
Secretary  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

Attention: Rulemakings and Adjudications Staff

Submitted via e-mail to [secy@nrc.gov](mailto:secy@nrc.gov)

Dear Ms. Vietti-Cook:

On behalf of the Project On Government Oversight (POGO) and the Union of Concerned Scientists (UCS) and pursuant to 10 CFR 2.802, I submit the enclosed petition to U.S. Nuclear Regulatory Commission (NRC) to amend 10 CFR 50 to add an appendix similar to Appendix E but with the objective of periodically demonstrating the ability of applicable local, state, and federal entities to adequately protect the American public from radiological sabotage at nuclear power plants. The purpose of this petition is to verify adequate protection against radiological sabotage at U.S. nuclear power plants posed by threats above the design basis threat (DBT) level.

Sincerely,

David Lochbaum  
Director, Nuclear Safety Project

Distribution:

Danielle Brian, Executive Director  
Project On Government Oversight  
666 11<sup>th</sup> Street NW, Suite 900  
Washington, DC 20001-4542

Washington Office: 1707 H Street NW Suite 600 • Washington DC 20006-3919 • 202-223-6133 • FAX: 202-223-6162  
Cambridge Headquarters: Two Brattle Square • Cambridge MA 02238-9105 • 617-547-5552 • FAX: 617-864-9405  
California Office: 2397 Shattuck Avenue Suite 203 • Berkeley CA 94704-1567 • 510-843-1872 • FAX: 510-843-3785

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SECY-02



# Union of Concerned Scientists

Citizens and Scientists for Environmental Solutions

## PETITION FOR RULEMAKING

This petition for rulemaking is submitted pursuant to 10 CFR 2.802 by the Project On Government Oversight (POGO) and the Union of Concerned Scientists (UCS). It is patterned after the layout and structure of an industry petition that was accepted for consideration by the NRC.<sup>1</sup> The petitioners request that the U.S. Nuclear Regulatory Commission (NRC), following notice and opportunity for comment, amend 10 CFR Part 50, *Domestic Licensing of Production and Utilization Facilities*, to add an appendix (or comparable regulation), similar to existing Appendix E, requiring periodic demonstration of adequate protection by local, state, and federal entities against radiological sabotage of U.S. nuclear power plants above the design basis threat (DBT) level.

In January 2007, the NRC issued a final rule establishing an upgraded DBT among other security changes made in the wake of the 9/11 tragedies. In the regulatory package accompanying the DBT rule, the NRC stated:<sup>2</sup>

*The DBT rule therefore reflects the Commission's determination of the most likely composite set of adversary features against which private security forces should reasonably have to defend against.*

This determination is analogous to the regulations governing emergency planning in event of nuclear plant accidents. The plant owners have primary responsibility for protecting workers inside the plant's fences and providing essential information about the accident to local, state, and federal authorities who have primary responsibility for protecting persons outside the plant's fences. Just as the NRC determined that it would be unreasonable to make the plant owner solely responsible for protecting all persons potentially in harm's way in event of a nuclear plant accident, the NRC determined that it would be unreasonable to make the plant owner responsible for protecting against all conceivable sabotage threats.

In addition to redrawing the DBT line at a level beneath the maximum credible threat level (albeit, above the pre-9/11 level), the NRC also revised its regulations to require periodic demonstrations that plant owners can successfully meet their responsibility to adequately protect nuclear power plants from sabotage threats up to and including the DBT level. But the NRC's revisions failed to include provisions to periodically demonstrate that applicable local, state, and federal entities can successfully meet their responsibilities to adequately protect nuclear power plants from sabotage threats above the DBT level.

This petition seeks to remedy that shortcoming by amending NRC's regulations to require periodic demonstrations that nuclear power plants can be adequately protected from sabotage threats above the DBT level. Just as Appendix E to 10 CFR part 50 currently requires periodic demonstrations that plant owners and external authorities can successfully meet their responsibilities during nuclear plant emergencies, the regulations sought by this petition would provide comparable assurance that external authorities can successfully meet their responsibilities protecting against a sabotage threat above the DBT level. Appendix E requires biennial exercises at each nuclear plant site. The NRC's role during these exercises is to evaluate the plant owner's performance. The Federal Emergency Management Agency (FEMA) evaluates the performance of local, state, and federal entities. Currently, the NRC's revised security regulations require demonstrations at each nuclear plant site at least once every three years of the plant owner's performance in defending against sabotage threats up to the DBT level. This petition seeks to add a periodic demonstration that external entities can defend against sabotage threats above the DBT level. For Americans to be adequately protected, both sides of the DBT line must be defended.

# Petition for Rulemaking: Protection Against Beyond Design Basis Threat Attacks on Nuclear Power Plants

## I. STATEMENT OF PETITIONER'S INTEREST

The Project On Government Oversight (POGO) follows a rich tradition of assuring that the government continues to work for the people it represents. Our nation was founded on the very principle that representation and accountability are fundamental to maintaining a strong and functioning democracy. Today, these principles espoused by our founding fathers are under attack as our federal government is more vulnerable than ever to the influence of money in politics and powerful special interests. In the beginning, POGO (which was then known as Project on Military Procurement) worked to expose outrageously overpriced military spending such as the \$7,600 coffee maker and the \$436 hammer. After many successes reforming the military, POGO expanded its mandate to investigate systemic waste, fraud, and abuse in all federal agencies. POGO has actively engaged the NRC, Congress, and other decision-makers on the important topic of nuclear plant security. For example, POGO released "Nuclear Power Plant Security: Voices from Inside the Fences" in September 2002 documenting interviews with security guards at 24 nuclear reactors revealing concerns about being under-manned, under-trained, and under-equipped. This report factored in the NRC's April 2003 order about training and qualifications for security guards.

The Union of Concerned Scientists (UCS) is a nonprofit partnership of scientists and citizens combining rigorous scientific analysis, innovative policy development, and effective citizen advocacy to achieve practical environmental solutions. UCS had 61,300 members in 2002.<sup>3</sup> UCS was an active participant in a series of public meetings conducted before 09/11 by the NRC with its external stakeholders regarding security regulations and implementing procedures for nuclear power plant reactors and their spent fuel. Among other things, those discussions produced two policy papers submitted by the NRC staff to the Commission in June 2001.<sup>4</sup> Although the NRC closed its doors to UCS and other non-industry, public stakeholders regarding security policy matters after 09/11, we continued to articulate potential problems and recommended solutions in other public arenas. In April and June of 2002, UCS testified before the U.S. Senate on nuclear power plant security issues. In March of 2003, UCS testified before the U.S. House on nuclear power plant security issues. UCS stands ready to resume discussions with the NRC should the agency opt to re-open its doors to stakeholders other than the nuclear industry. On September 14 2004, UCS testified before the U.S House on nuclear plant security issues. In December 2005, UCS along with the North Carolina Waste Awareness and Reduction Network submitted allegations about security problems at the Shearon Harris nuclear plant based on information received in confidence from security officers at that plant. In September 2006, Congressman Edward Markey formally queried the NRC about concerns raised in a UCS report of security allegations at the South Texas Project based on information received in confidence from security officers at that plant. UCS clearly plays an active role in ensuring security at US nuclear power plants is effective and seamless.

## II. BACKGROUND

10 CFR Part 73 specifies the security requirements for nuclear power plants. In January 2007, the NRC revised 10 CFR Part 73.1 incorporate its final rulemaking on the design basis threat (DBT). The revised DBT level was not redrawn at the maximum level deemed credible, but rather at the highest level the Commission considered appropriate for private industry to bear:

*The DBT rule therefore reflects the Commission's determination of the most likely composite set of adversary features against which private security forces should reasonably have to defend against.*<sup>5</sup>

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Since 9/11, the NRC has also taken steps to revise its regulations so as to provide greater assurance that plant owners can adequately protect their facilities against threats up to and including the new DBT level. For example, the NRC evaluates force-on-force tests conducted at least once every three years at each operating nuclear plant site to determine if the security features and forces can protect can simulated attacks by mock intruders up to the new DBT level. In theory, this ensures that Americans are adequately protected against sabotage threats up to and including the new DBT level.

But because the NRC redrew the new DBT line at a level beneath the maximum level deemed credible, the potential exists for a nuclear plant to someday face an attack beyond the DBT level. Should that day arrive, the defense of the plant would depend on the security force supplemented by local, state, and federal entities – a response not unlike the current regulatory response to nuclear plant accidents. The array of regulations in 10 CFR Part 50, if met, reduce the likelihood that a serious reactor accident with significant offsite release of radioactivity occurs. The plant owner is responsible for complying with these regulations that seek to defend against a serious reactor accident. The regulations are therefore analogous to the new DBT level in that they seek to protect Americans from harm caused by design basis accidents.

But because the likelihood of a serious reactor accident with significant release of radioactivity cannot be completely ruled out, Appendix E to 10 CFR Part 50 requires plant owners and external entities (i.e., local, state, and federal authorities) to have emergency plans in place to protect Americans in event of improperly defended design basis accidents as well as beyond design basis accidents. Among other things, Appendix E requires the following:

*The plan shall describe provisions for the conduct of emergency preparedness exercises as follows: Exercises shall test the adequacy of timing and content of implementing procedures and methods, test emergency equipment and communications networks, test the public notification system, and ensure that emergency organization personnel are familiar with their duties.*

*a. A full participation exercise which tests as much of the licensee, State and local emergency plans as is reasonably achievable without mandatory public participation shall be conducted for each site at which a power reactor is located. This exercise shall be conducted within two years before the issuance of the first operating license for full power (one authorizing operation above 5% of rated power) of the first reactor and shall include participation by each State and local government within the plume exposure pathway EPZ and each state within the ingestion exposure pathway EPZ. If the full participation exercise is conducted more than one year prior to issuance of an operating licensee for full power, an exercise which tests the licensee's onsite emergency plans shall be conducted within one year before issuance of an operating license for full power. This exercise need not have State or local government participation.*

*b. Each licensee at each site shall conduct an exercise of its onsite emergency plan every 2 years. The exercise may be included in the full participation biennial exercise required by paragraph 2.c. of this section. In addition, the licensee shall take actions necessary to ensure that adequate emergency response capabilities are maintained during the interval between biennial exercises by conducting drills, including at least one drill involving a combination of some of the principal functional areas of the licensee's onsite emergency response capabilities. The principal functional areas of emergency response include activities such as management and coordination of emergency response, accident assessment, protective action decisionmaking, and plant system repair and corrective actions. During these drills, activation of all of the licensee's emergency response facilities (Technical Support Center (TSC), Operations Support Center (OSC), and the Emergency Operations Facility (EOF)) would not be necessary, licensees would have the*

## **Petition for Rulemaking: Protection Against Beyond Design Basis Theat Attacks on Nuclear Power Plants**

*opportunity to consider accident management strategies, supervised instruction would be permitted, operating staff would have the opportunity to resolve problems (success paths) rather than have controllers intervene, and the drills could focus on onsite training objectives.*

*c. Offsite plans for each site shall be exercised biennially with full participation by each offsite authority having a role under the plan. Where the offsite authority has a role under a radiological response plan for more than one site, it shall fully participate in one exercise every 2 years and shall, at least, partially participate<sup>5</sup> in other offsite plan exercises in this period. If two different licensees whose licensed facilities are located either on the same site or on adjacent, contiguous sites, and that share most of the elements defining co-located licensees,<sup>6</sup> each licensee shall:*

*(1) Conduct an exercise biennially of its onsite emergency plan; and*

*(2) Participate quadrennially in an offsite biennial full or partial participation exercise; and*

*(3) Conduct emergency preparedness activities and interactions in the years between its participation in the offsite full or partial participation exercise with offsite authorities, to test and maintain interface among the affected state and local authorities and the licensee. Co-located licensees shall also participate in emergency preparedness activities and interaction with offsite authorities for the period between exercises.*

Rather than meekly assuming that the plant owner's capabilities will be successfully supplemented by external entities, or declaring so by fiat, Appendix E requires training and, more importantly, biennial demonstrations that plant owners and external entities understand their roles and responsibilities and have adequate resources to taken the steps necessary to protect the American public. During the periodic exercises required by Appendix E, the NRC primarily evaluates how well the plant owner performs while FEMA primarily evaluates how well the external entities perform. Thus, Appendix E protects Americans from harm by periodically assuring that plant owners and external entities can take appropriate emergency measures in event a design basis accident or beyond design basis accident isn't defended against.

No similar protection shields Americans from harm in event a beyond DBT level attack occurs. This petition seeks to remedy that gap.

The regulatory package supporting the recently revised DBT rule spoke to aircraft, waterborne, and large ground attacks. In addition, NRC Commissioner Edward McGaffigan Jr. informed many representatives of non-government organizations, including UCS, during a tour of the NRC's Incident Response Center in April 2006 of the government's plans to monitor flight paths of hijacked and suspicious aircraft and provide advance warnings to potential target destinations, including nuclear plant sites. Such measures are valuable and would hopefully provide a solid foundation for successful demonstrations that Americans would be protected from beyond DBT level attacks. But proclamation alone doesn't guarantee such outcomes. The challenge is daunting for many reasons, including:

- The collection of local, state, and federal authorities combining to protect Americans from beyond DBT level attacks varies widely across the United States. For example, the United States Coast Guard plays a larger role at nuclear plants like Pilgrim in Plymouth, Massachusetts and Calvert Cliffs in Maryland than at nuclear plants like Wolf Creek in Kansas.

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- The advance warning of incoming aircraft hazard also varies widely across the United States. For example, the nuclear plants at Seabrook in New Hampshire and Turkey Point in Florida are seconds away from large aircraft departing nearby airports while the Cooper nuclear plant in Nebraska really isn't close to anything.
- The geology of some nuclear plant sites like Three Mile Island in Pennsylvania make it unlikely that unauthorized persons can approach the facility without being noticed while the very close proximity of other nuclear plant sites to populated areas (like the San Onofre nuclear plant in California being directly adjacent to a state park and an active military base) make it harder to ascertain who is doing what where.
- The proximity of large amounts of toxic chemicals and/or natural gas pipelines to nuclear plants like Waterford in Louisiana exposes them to unique challenges not faced by more remotely sites nuclear plants like Cooper in Nebraska or Wolf Creek in Kansas.

For the same reasons that Appendix E requires periodic exercises involving plant owners and applicable local, state, and federal entities to demonstrate sufficient emergency planning proficiency, comparable demonstrations involving plants owners and applicable external entities is needed to provide reasonable assurance proficiency for beyond DBT level attacks.

### **III. PROPOSED ACTIONS**

Amend 10 CFR Part 50 to add an appendix similar to existing Appendix E that requires periodic exercises at each operating nuclear plant site involving licensees and applicable local, state, and federal entities to demonstrate capabilities to protect the public from harm posed by attacks greater than the DBT level.

- "Periodic" need not be as frequent as the once every two year interval for emergency plan exercises specified in Appendix E, particularly if provisions require training, call-out list updating, drills, and other capability-sustaining measures between the exercises.
- If several nuclear plant sites are located in such close proximity that the lineup of local, state, and federal entities is the same, than a single exercise -- perhaps rotated among the sites -- should satisfy the requirement for all the sites.
- A single exercise could satisfy the requirements of Appendix E and this new appendix if and only if the exercise featured a security-related component and the exercise scope broad enough to demonstrate both emergency planning and security protection/mitigation performance.

### **IV. RATIONALE FOR THE CHANGES**

The NRC's augmented security regulations require plant owners to protect their facilities from radiological sabotage attempted up to and including the design basis threat (DBT) level. That requirement is backed by NRC's revised inspection program, including but not limited to verification at least once every three years that each plant owner has provided sufficient gates, guards, and guns to successfully defend against a mock attack up to or at the DBT level. The objective of the requirements and inspections is to provide reasonable assurance that Americans are protected against sabotage attacks at or below the DBT level.

The DBT level was not established at the maximum level deemed credible by threat assessments performed by the national intelligence community. Plant owners are not required to defend against beyond DBT level attacks. Katrina tragically showed what can happen when defenses encounter

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challenges beyond their designed capabilities. This petition seeks to complement the measures taken by NRC since 9/11 to protect Americans from sabotage attacks up to the DBT level by periodically demonstrating adequate protection is also available for beyond DBT level attacks. We cannot assume that those wishing us harm will limit their efforts to the DBT level. We must show that Americans can be protected from all credible hazards.

10 CFR Part 50 contains numerous requirements aimed at preventing accidents at nuclear power plants that put Americans in harm's way. But, as federal liability protection under the Price-Anderson Act as amended clearly indicates, the risk still isn't so low as to be dismissed. So, Appendix E functions as a backstop seeking to protect Americans from accidents at nuclear power plants that could put them in harm's way.

The NRC's post-9/11 security upgrades are comparable to the numerous requirements in 10 CFR Part 50. They seek to prevent radiological sabotage at nuclear power plants that put Americans in harm's way. But just as the threat from accidents cannot be dismissed, the threat from successful sabotage cannot be dismissed.

Appendix E functions as a partial backstop in event of successful sabotage in that public health protective measures such as evacuation and sheltering are equally valuable and useful. But Appendix E is not enough. Appendix E is intended to ensure applicable local, state, and federal entities can take steps outside the plant's fences to protect the public. Appendix E does not ensure that applicable local, state, and federal entities can take steps to prevent an attack, if time permits, or terminate and mitigate an attack. The roles, responsibilities, and interfaces for emergency planning differ from those needed for responding to radiological sabotage attempts/attacks.

The new appendix, coupled with Appendix E, functions as full backstop seeking to protect Americans from radiological sabotage at nuclear power plants that could put them in harm's way.

Suppose a beyond DBT level attack had actually occurred at a US nuclear power plant and Americans were harmed. Would we take no steps to prevent another such attack, reinforcing the notion that the DBT level was good enough? Or would we instead provide full-range protection, just as New Orleans is not getting full-range levee protection? If the answer to the first question is 'no,' this petition is not necessary. If the answer to the second question is 'yes,' this petition is necessary. UCS firmly believes this petition is necessary. It is far better public policy and requires far fewer body bags to have protection that is not tested than semi-defenses that fail when tested.

### **V. CONCLUSION**

The proposed appendix to 10 CFR Part 50 complements the steps taken by NRC to protect Americans from radiological sabotage of nuclear power plants by threats up to and including the revised design basis threat level. Using the emergency planning exercise model of Appendix E to 10 CFR Part 50, this new appendix will periodically demonstrate that licensees' capabilities supplemented by resources from local, state, and federal entities protect Americans from beyond DBT level attacks.

# **Petition for Rulemaking: Protection Against Beyond Design Basis Threat Attacks on Nuclear Power Plants**

## **Cited Sources:**

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<sup>1</sup> Letter dated February 6, 2002, from Anthony R. Pietrangelo, Director – Risk & Performance Based Regulation, Nuclear Energy Institute, to Annette L. Vietti-Cook, Secretary, U.S. Nuclear Regulatory Commission.

<sup>2</sup> Memo dated September 29, 2006, from Ho Nieh, Acting Director, Division of Policy and Rulemaking, Office of Nuclear Reactor Regulation, Nuclear Regulatory Commission, to Distribution, “Final Rule: Design Basis Threat (DBT) 10 CFR 73.1.”

<sup>3</sup> Union of Concerned Scientists, Cambridge, MA, “Annual Report 2002.”

<sup>4</sup> Memo dated June 4, 2001, from William D. Travers, Executive Director for Operations, Nuclear Regulatory Commission, to the Commissioners, Nuclear Regulatory Commission, SECY-01-0100, “Policy Issues Related to Safeguards, Insurance, and Emergency Preparedness Regulations at Decommissioning Nuclear Power Plants Storing Fuel in Spent Fuel Pools,” and Memo dated June 4, 2001, from William D. Travers, Executive Director for Operations, Nuclear Regulatory Commission, to the Commissioners, Nuclear Regulatory Commission, SECY-01-0101, “Proposed Rule Changes to 10 CFR 73.55: Requirements for Physical Protection of Licensed Activities at Nuclear Power Reactors Against Radiological Sabotage; 10 CFR Part 72: Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste; and 10 CFR 50.54(p): Conditions of Licenses.”

<sup>5</sup> Memo dated September 29, 2006, from Ho Nieh, Acting Director, Division of Policy and Rulemaking, Office of Nuclear Reactor Regulation, Nuclear Regulatory Commission, to Distribution, “Final Rule: Design Basis Threat (DBT) 10 CFR 73.1.”

**From:** "Dave Lochbaum" <dlochbaum@ucsusa.org>  
**To:** <SECY@nrc.gov>  
**Date:** Fri, Feb 23, 2007 10:30 AM  
**Subject:** Petition for rulemaking - demonstrating protection above the DBT level

Good Day:

The attached petition is submitted electronically as provided at <http://www.nrc.gov/what-we-do/regulatory/rulemaking/petition-rule.html#before>

This petition is submitted on behalf of the Project On Government Oversight (POGO) and the Union of Concerned Scientists (UCS) seeking to ensure that Americans are adequately protected from nuclear plant sabotage threats up to and over the revised design basis threat (DBT) level. The current regulations charge plant owners with providing protection up to and including the DBT level and specify periodic demonstrations of ability to meet that responsibility.

By default, local, state, and federal authorities are responsible for protecting the public from threats above the DBT level. But there's no tangible measure of capability to meet those obligations.

The petition seeks to add a requirement similar to the existing regulations in Appendix E to 10 CFR Part 50. Those regulations require a biennial emergency planning exercise at each nuclear plant site to demonstrate that plant owners fulfill their responsibilities inside the fences and local, state, and federal entities fulfill their responsibilities outside the fences.

The petition seeks a new requirement for periodic demonstrations that local, state, and federal entities will protect Americans from threats against nuclear power plants above the revised DBT level. Both sides of the DBT line must be defended if Americans are to be adequately protected.

Thanks,  
Dave Lochbaum  
Director, Nuclear Safety Project  
Union of Concerned Scientists  
1707 H Street NW Suite 600  
Washington, DC 20006-3962  
(202) 223-6133 (office)  
(202) 331-5430 (direct line)  
(202) 223-6162 (fax)

**CC:** "Roy Zimmerman" <RPZ@nrc.gov>, "Scott Burnell" <SRB3@nrc.gov>, "POGO" <pogo@pogo.org>

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**From:** "Dave Lochbaum" <dlochbaum@ucsusa.org>  
**Created By:** dlochbaum@ucsusa.org

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